RSITY
19
LIBRARY

DOMESTIC ENGINEERING

The bank next door hasn't a more impressive appearance than this plumbing store.

NOVEMBER
1,
1930

Does the Store Pay Dividends?

Twelve plumbing and heating contractors say "Yes" on the basis of their experience

KEWANEE

Water Heating GARBAGE BURNERS

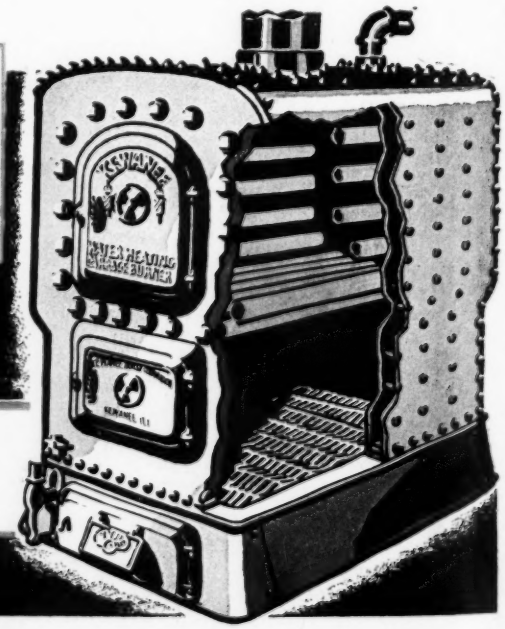
CLEVER FELLOWS—these Magicians: They toss a rope into the air, and the spellbound audience testifies that a man actually climbs the rope. An entertaining, though useless trick.

The Modern, Useful Magician

A Kewanee Water Heating Garbage Burner is likewise a Magician—but a modern, *useful* one. For it actually turns garbage and rubbish into fuel, using it as part of the fuel necessary for heating water.

It does two things—and does both of them well. It *disposes* of garbage and rubbish in a sanitary manner; and it reduces fuel bills.

Built in 3 types and 16 sizes to heat from 200 to 2600 gallons of water—50 degrees raise in temperature per hour. Catalog No. 75 has the details.

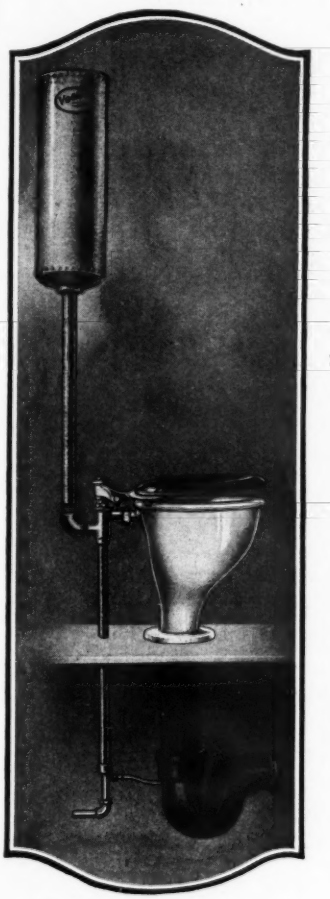


KEWANEE BOILER CORPORATION
division of American Radiator and Standard Sanitary Corporation
KEWANEE, ILLINOIS *Branches in Principal Cities*
MEMBER OF STEEL HEATING BOILER INSTITUTE

They can't freeze . . . they won't wear out

And you make a good profit . . . on each one you install

VOGEL PATENTED *Frost-Proof* CLOSETS *and* HYDRANTS

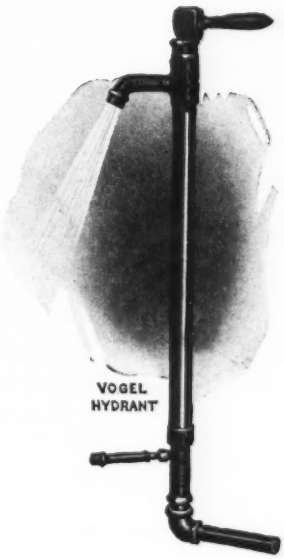


NUMBER ONE VOGEL FROST-PROOF CLOSET

Simple in operation. Sturdy in construction. Half a million in operation.

WHILE you are making a profit installing VOGEL Closets or Hydrants you are giving your customers protection against closets freezing, even in the coldest weather, and an installation that will stand the hardest kind of wear, under all conditions, for years to come.

Be sure you install **VOGELS.** Let us help you with folders, blotters, stickers—to be had for the asking. Folders and blotters are imprinted with your name and address.



VOGEL FROST-PROOF HYDRANT

Don't Neglect This Market

Private and public garages, yards of all sorts, farms, dairies, are all good prospects for Vogel Frost-Proof Hydrants. A great convenience any place.

See inside back page for VOGEL PATENTED *Seat-action closet Advertisement*

JOSEPH A. VOGEL COMPANY

Wilmington, Del. St. Louis, Mo.

VOGEL PATENTED *Frost-Proof* PRODUCTS

DOMESTIC ENGINEERING

Plumbing & Heating Contracting and Merchandising

Established 1889

Vol. 133, No.3 | November 1, 1930 | Whole No. 1929

IN THIS ISSUE

Page

Chicago Contractor Holds Up Sales by Pushing Remodeling 40

Radiator Enclosures Improve Air and Save Steam. By A. C. Willard 43

Flat Rate Basis for Repair Charges 48

Accurate Estimates Lead to Profits. By W. W. Hughes 50

Vacant Houses Now Need Protection Against Winter. By S. M. Barr 53

Plumbing and Heating Merchandising.—The Store—Does It Pay Dividends? The Master Salesman 57

Sidelights on the Meeting of the Board of Directors of the N.A.M.P 65

Arc Welding and How It Has Been Applied to Plumbing and Heating. By Fred Davis 67

Training the Master Plumber of Tomorrow. By Harry Davidson 78

Automatic Air Control Solved This Oil Burner Trouble. By K. Steiner and P. R. Unger 88

Solved! Thirteen Plumbing Problems. By W. S. L. Cleverdon 92

Latest Venting Practices Revealed in Code Study. By R. M. Starbuck, Jr 98

SPECIAL DEPARTMENTS

BETWEEN OURSELVES 6
OUR INDUSTRY 39
EDITORIALS 56
RETAIL ADVERTISING SERVICE 86
SUPPLY NEWS 111
CONVENTION DATES 124
THE TRADE 125
MARKETS 141
QUESTIONS AND ANSWERS 149
WOMAN'S PAGE 160
PLUMBING AND HEATING PATENTS 173
INDEX TO ADVERTISERS 178

EDITORIAL STAFF

R. V. Sawhill, *Editorial Director*
R. Herlov, Chas. E. Price,
L. W. Britton, G. R. Stearns,
J. E. Ramage, W. W. Gothard,
Associate Editors

R. M. Starbuck, Jr.,
Consulting Editor on Plumbing

ADVERTISING REPRESENTATIVES

F. S. King, E. G. Hutchison,
R. Payne Wettstein,
Wallace J. Osborn, H. J. Carr,
D. M. Kenney, Robert A. Jack,
R. H. Partenfelder,
A. T. Papineau

Published Fortnightly by
ENGINEERING PUBLICATIONS, INC.
1900 Prairie Avenue, Chicago

F. P. KEENEY,
President and Treasurer
E. DE FOREST WINSLOW,
Vice President
O. T. CARSON,
Secretary

BRANCH OFFICES

NEW YORK—
Rooms 1706-1707, 110 East 42nd St.

PHILADELPHIA—
Room 1507, Finance Bldg.

PITTSBURGH—
Room 604, Chamber of Commerce Bldg.

DETROIT—
Room 410, Donovan Bldg.

TERMS OF SUBSCRIPTION
Anywhere in the World, $2.00 per year.
Current copies, 20c each. Back numbers, 40c each

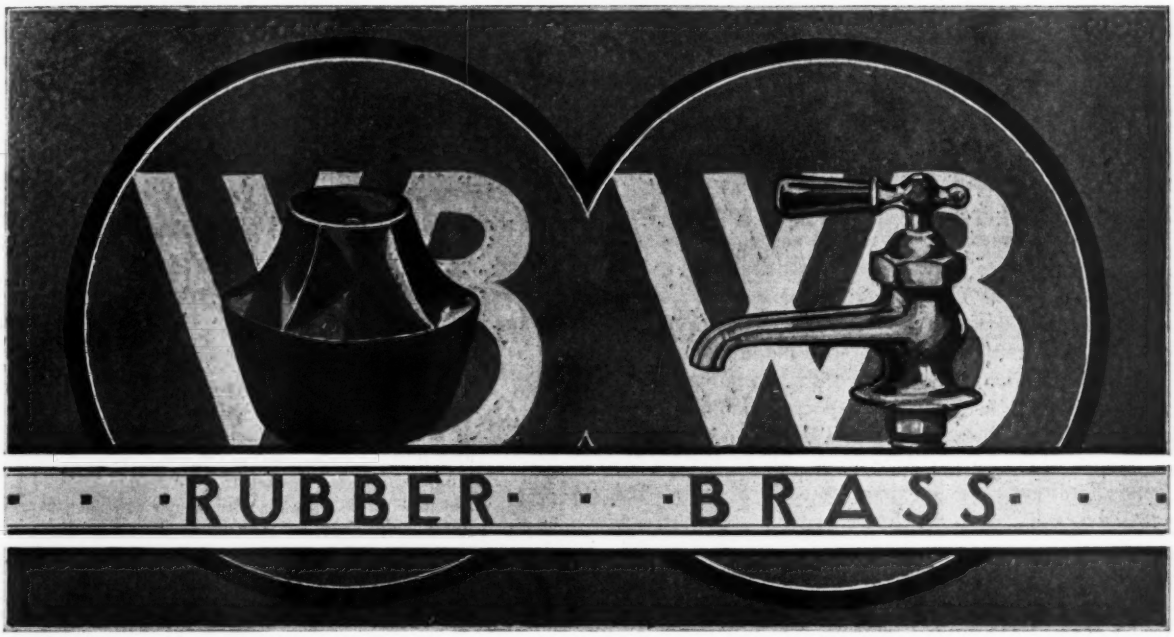
Copyright 1930, by Engineering Publications, Inc.

Entered as Second Class Matter on January 19, 1929, at the Post Office at Chicago, Illinois, under the Act of March 3, 1879.

Member of Audit Bureau of Circulations.

More Than 20,000 Copies of This Issue Printed and Distributed

WOLVERINE



IDENTICAL IN QUALITY

The dependability of "WB" products is not questioned. The standards of Wolverine manufacture are too exacting . . the materials used are the best obtainable and are worked by only skilled craftsmen. "Dependable . . Moderately priced," says the progressive Master Plumber of "WB" Products . . Rubber or Brass . . and will use no other . . He knows the important part Dependable Products plays in his very existence . . Only by the lasting satisfactory performance of products installed by the Master Plumber . . can he hold the confidence of his customers . . can he continue in business . . He finds the Dependability of "WB" Products a valuable asset to his technique . . and a very profitable one.

The very complete line of "WB" Dependable Rubber Goods is the result of intelligent study by Wolverine Engineers of Master Plumbers' needs.

WOLVERINE BRASS WORKS
GRAND RAPIDS - - MICHIGAN

The Master Plumber will find in the complete line of "WB" Brass Goods, a Dependable Product for any installation he is called upon to make.

WE SELL THE RETAIL PLUMBING TRADE EXCLUSIVELY

Between Ourselves

It is not common at the present time to hear of a business man whose sales volume for the first half of this year compares favorably with the corresponding period of 1929. When we do hear of such a case it is worth while learning something more about the methods used by this man, and particularly when most other men engaged in the same industry are complaining about business.

Your Editor

INSTEAD of expending his merchandising efforts on everyone on his prospect list, Hans Jensen, head of the plumbing and heating concern in Chicago which bears his name, has maintained his 1930 sales volume by concentrating his sales efforts on a select group of people with whom he has previously done business. Concentrating on this type of prospect accounted for 80 per cent of Mr. Jensen's entire volume in the first six months of this year. The bulk of his work is along the lines of remodeling. He keeps an indexed card system showing the condition of the plumbing and heating equipment in all homes where he has done work, which enables Mr. Jensen to direct a specific appeal to each prospect. This case is an example of real merchandising and it will be worth your while to give close attention to the story. The title is "A Remodeling Campaign That Brought Busi- title is "Chicago Contractor Holds Up Sales By Pushing Remodeling."

ONE of the members of our editorial staff interviewed twelve contractors who are conducting plumbing and heating stores. Asked if the stores were worthwhile, the reply was unanimous: Yes. As one contractor said, "I should have had a store twenty years ago." Definite answers to a series of questions will be found in the Plumbing and Heating Merchandising section.

TWO years ago this past summer a five-story building in Chicago was vacated by a large wholesale supply house which was moving into its own building. The vacated building, which was modern in every respect and in a good location, remained empty. When winter came the building still lacked a tenant and one cold day the whole plumbing system froze up. You can well imagine the damage that was done and the expense of making repairs—and all because someone failed to call in a master plumber to drain the system in the proper way. Many summer cottages, residences, apartments and other buildings are vacant right now, and the chances are that in lots of them the plumbing system has not been protected for the winter months. In this issue, S. M. Barr gives some good pointers on this type of work. The story is called, "Vacant Houses Now Need Protection Against Winter."

"THERE is a lot of truth in the old saying, 'You never miss the water until the well goes dry.' That is the way with DOMESTIC ENGINEERING to me, I couldn't get along without it." So W. F. Kerr, plumbing and heating contractor of Mt. Union, Pa., voices his opinion.

"ACCURATE Estimates Lead to Profits" is the title of Part 3 of a series of stories on "Estimates and how to make them," by W. W. Hughes, which appears in this issue. Estimating is one of the most important phases of the contracting business, and many a contractor has gotten himself into serious trouble because of a lack of knowledge on the subject or because of carelessness in making estimates. Gambling on estimating quotations never brings business success.

TIME was, years ago, when a young lad entered the plumbing trade in an orderly manner by serving an apprenticeship for a definite number of years, under the instruction of a journeyman. Nowadays, however, it is an actual fact that we cannot tell just how a lad does become a journeyman. It is seldom that he reaches that position after serving an apprenticeship. Usually his knowledge is acquired in a haphazard way—learning a little here and a little there—until he feels that he has become a journeyman plumber. Such a condition is not promising for the industry's future. This question is treated in this issue by Harry Davidson in a story titled, "Training the Master Plumber of Tomorrow."

REMODELING continues to prove itself an important source of business for the plumbing and heating industry. By going after this type of work in an aggressive manner, many contractors in the field are finding it possible to maintain their sales at a favorable level. Our next issue will contain some splendid material on the subject, telling of the successful methods pursued by contractors in securing this work.

The man who is so busy that he does not have time to read his trade paper is like the man who was so busy chopping wood that he did not have time to sharpen his axe

There Ain't No Bogey Man!

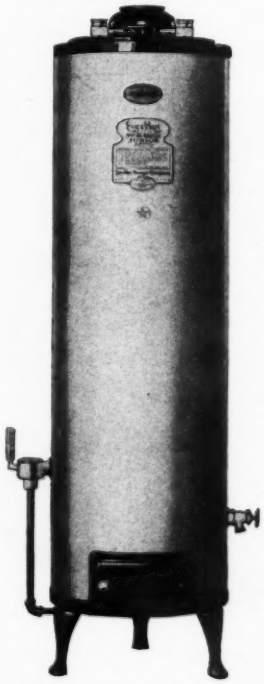
You've often heard it said "There ain't no Santa Claus," and Believe it or Not,—There Ain't No Bogey Man.

The Bad Business Bogey may be quickly dispelled by the application of a little faith and lots of effort.

What if new construction has been curtailed, thousands and thousands of homes need new fixtures, such as automatic water heaters and their owners have the money to buy them. Bank reports verify this.

EverHot
AUTOMATIC
WATER HEATER

Approved
by Good Housekeeping
and American Gas Assn.



Tell them about the EverHot—the Best There Is—give them a chance to buy. They will quickly see the value; it is economical in operation and one reason for that is the Leakage By-Pass—an exclusive EverHot feature—that prevents the waste of gas otherwise due to leaking or dripping hot water faucets.

The EverHot Automatic Water Heater is alive with selling points—you can make your water heater sales carry your business if you will push the EverHot.

If you are not informed of our nearest distributor's address, or if you would like additional information on EverHot—

Write Us Today

EverHot Heater Company

5211 Wesson Avenue **Detroit, Michigan**

This *slip-on*

FIG. 106-A, SCREWED, JENKINS STANDARD BRONZE GLOBE VALVE *with one-piece screw-over bonnet. Note how the bonnet keeps the disc holder from slipping off. For 150 lbs. steam working pressure, or 250 lbs. oil, water, gas working pressure.*

JENKINS BROS.,
80 White Street, New York, N. Y.
Please send Bulletin 141 on Jenkins Standard Bronze Valves with one-piece screw-over bonnets to

Name.....

Address.....

.....

JENKINS VALVES ARE ALWAYS MARKED WITH THE "DIAMOND"

stay-on disc holder *does not fall off!*

THE slip-on disc holder that does not fall off! Here is a unique feature in this Jenkins Fig. 106-A Standard Bronze Globe Valve. If, before the one-piece screw-over bonnet is removed, the spindle is opened a turn or so, the disc holder stays on the spindle.

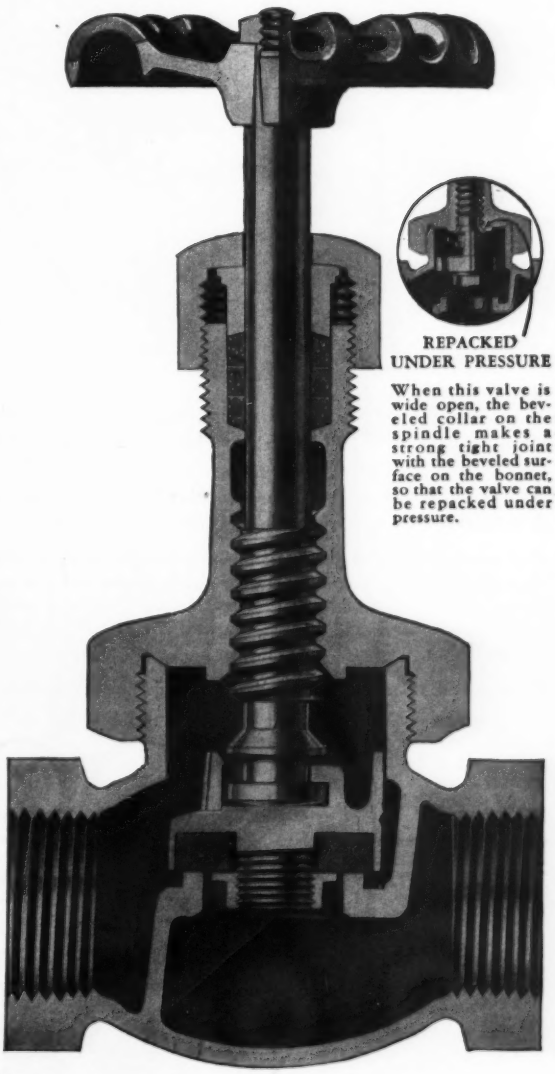
The bonnet is made in *one sturdy piece.* Generous hex surfaces permit easy purchase with a wrench. There is no danger of springing the bonnet. It can be easily taken off and put back repeatedly without injury.

Your supply house can furnish Jenkins Bronze Valves with the one-piece screw-over bonnet in globe, angle, cross and check types, screwed and flanged. Ask to see these strong, long-life valves. The coupon is for your convenience in sending for more information.

JENKINS BROS.

80 White Street, New York, N. Y. | 524 Atlantic Avenue, Boston, Mass. | 133 No. Seventh Street, Philadelphia, Pa.
646 Wash. Blvd., Chicago, Ill. | 1121 No. San Jacinto, Houston, Texas

JENKINS BROS., Limited, Montreal, Canada; London, England
Factories: Bridgeport, Conn.; Elizabeth, N. J.; Montreal, Canada

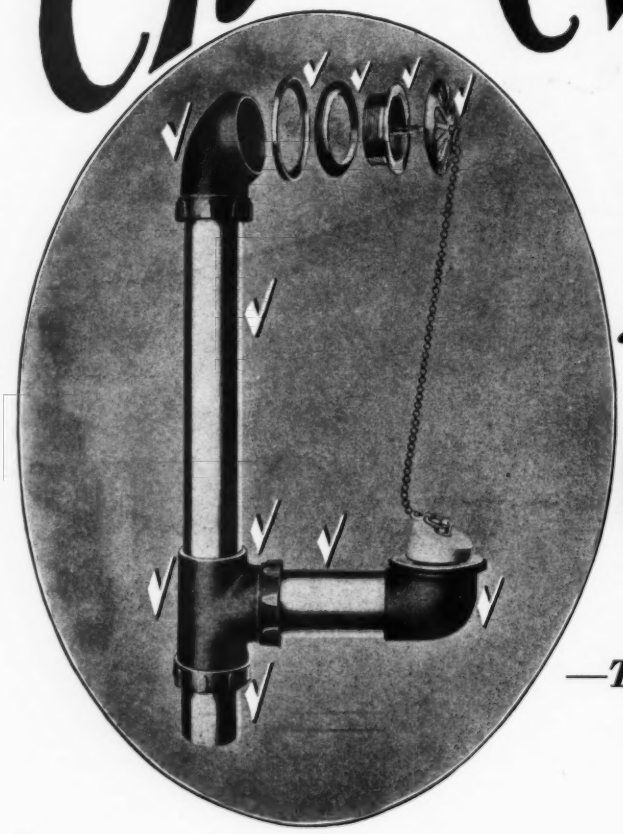


REPACKED UNDER PRESSURE

When this valve is wide open, the beveled collar on the spindle makes a strong tight joint with the beveled surface on the bonnet, so that the valve can be repacked under pressure.

Jenkins
VALVES
Since 1864

Check and Double Check



—These Exclusive Features which Save Installation Time and Increase Profits

YOU can't get away from it. The more time you save on installation the more profit you make. Take the Scovill 2-inch Waste and Overflow pictured here.

The ball shaped elbow at the top saves time because it's easy to fit this fixture to any pitch or make of tube.

The heavy cast tee at the bottom saves time because its very deep slip joints largely eliminate preliminary fitting and fussing. Conical, special tapered brass washers provide watertight seals. All tubing is of Scovill Brass, Standard No. 17 Brown and Sharpe Gauge.

From top elbow to stopper this Scovill 2-inch Waste and Overflow combines the time saving features that make it a plumber's favorite with the efficient performance that insures customers' satisfaction and goodwill.

Years of experience plus intimate understanding of plumbers' problems enable Scovill to make this better, easier-to-install, more profitable Waste and Overflow.

Join the army of profit-wise plumbers who reap swifter, bigger profits from the time-saving Scovill Line. Send for Scovill's latest catalog—NOW—and learn how.

SCOVILL MFG. CO., Plumbers Brass Goods Division
Waterville, Conn.

SCOVILL

Flush Valves ~ Shower and Bath Fixtures ~
Tubular and Miscellaneous Plumbers' Brass Goods
A COMPLETE LINE

NOW

is the time for

HOTSTREAM Profit

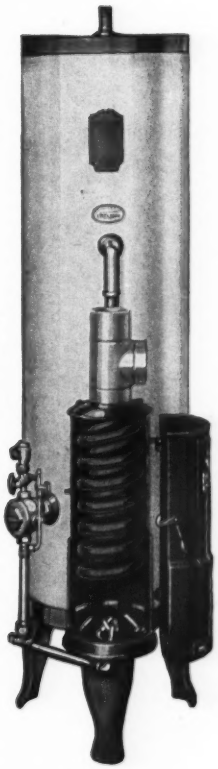
The smartest heater salesman today—is the plumber who is telling his customers of the remarkable value Hotstream offers *at such a price!*

Under ordinary conditions, Hotstream is a real buy. Under today's conditions—it's *the* heater, we believe, that plumbers can turn into the most profit for themselves.

The closer you study Today, the more you will agree with us. For in studying Today you must study Hotstream, its unusual features, and the sincerity of the company behind it. When you do that you can't fail to see the reputation and profits Hotstream is helping plumbers to build for themselves.

Sit down now, and do yourself a business favor: *Write for the Hotstream details.*

THE HOTSTREAM HEATER CO.
"Makers of Heaters that Heat"
CLEVELAND, OHIO



No. 20 SA
List Price, $66
Complete

EVERYTHING FAVORS THE HOTSTREAM

Times, Conditions, Features and Price make the Hotstream Heater the best bet for heater sales this Fall. And the Triple Guarantee (engineered-in) builds good will that brings many other sales.

HOTSTREAM AUTOMATIC STORAGE HEATERS

HERE'S THE REASON WHY

"VULCAN SUPERIOR"

handles *both* pipe and fittings

LOOK at the close-up illustration in the circle above. Note the "V" recess in the jaws of Williams' "Vulcan Superior" Tongs. This design assures quick and positive grip on fittings. No change in the tool is necessary when you switch from straight pipe to fittings.

And "Vulcan Superior" is the ONLY Chain Tongs with *reversible* pipe-and-fittings jaws. Williams' Tongs give double service at no added cost.

"Vulcan Superior" Tongs take either Flat chain or Cable chain. Each Flat chain is proof-tested and *certified*. Seven sizes for fittings up to 12 inch. Literature?

J. H. WILLIAMS & CO.
"The Wrench People"
New York BUFFALO Chicago

WILLIAMS
SUPERIOR DROP-FORGED TOOLS
VULCAN
SUPERIOR
PIPE AND FITTINGS TONGS

THE CELEBRATED SKIP TOOTH DIE
(Genuine Nye)
REG. U. S. PAT. OFFICE

A Letter from Harry G. Nye

November 1, 1930.

To the Plumbers and Steamfitters of the U. S. A.

As Coolidge said when he refused Lindbergh's invitation, "You can't make me soar."

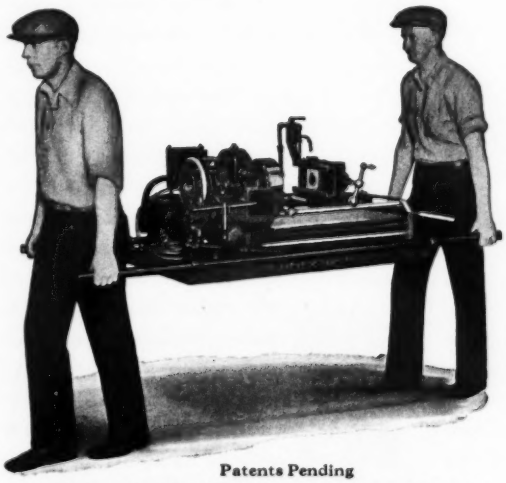
Fellow Citizens:

A fellow who had just been sentenced to ten years was being led out of court the other day when a sob-sister rushed up and asked, "My poor man, is there anything I can do for you?" "Yes," said the burglar, "you can do these ten years."

Once in a while some friend of mine says, "Harry, if there is anything I can do for you any time, just let me know." But I never let him know. I would rather think he would, than find out he wouldn't. So I ask some fellow who hasn't said a word.

A reader wrote in the other day and said, "I want to tell you how much I enjoy your letters. I not only want to tell you, I want to show you. I enclose an order for some tools we need. I suppose you can use an order now and then."

Yes, brother, and NOW even more than then. A good many years ago, before electric power was as common as it is at present, a man asked me, "Do you run your plant with steam or with electricity?" "Neither one," says I, "with orders."



Patents Pending
"THE LIGHTWEIGHT CHAMPION"
Threads—Cuts Off and Reams
Capacity ⅛ to 2 Inches
Furnished with either A. C. Motor, Universal Motor or Gasoline Engine

Just because a girl doesn't talk about kissing very much (at least they didn't when I was a boy), don't think that she doesn't enjoy it. And just because I don't say much about orders in my advertising, don't get the idea if you send one in that I'll get sore.

It occurred to me the other day that some friend of mine might be holding back because he thought an order might make me mad. I thought I better say something about it. One of my failings, if any, is that I am always too darned modest.

So, if you want to send in an order, it's all right with me. And, if you don't, there must be something all wrong with me.

Hopefully yours,

Harry G. Nye

OTHERWISE KNOWN AS
THE NYE TOOL & MACHINE WORKS
4120-30 Fullerton Avenue :: Chicago

Copyright 1930 by Harry G. Nye All rights reserved

THE CELEBRATED SKIP TOOTH DIE
(Genuine Nye)
REG. U. S. PAT. OFFICE

New Ventilating revolutionizes school

millions of dollars will be saved in fuel, maintenance and lowered building costs

OUT of many years of study, research, and practical experience in the field of school ventilation a new science has evolved which is the basis of a new ventilation art.

This art in many ways is contrary to past practice.

Most present and past practice has been based on the assumption that harmful and injurious effects resulted from the inhalation of respirated air. Therefore the object of most ventilation systems was to continuously flood the room with outdoor air in order to dissipate the so-called "crowd poison."

Scientists of today however, as a result of observation and practical experimentation, assert that the theory of outdoor air being the vital requirement of ventilation is unsound. They maintain that the indoor conditions essential to health, comfort and alertness are: 1. Atmospheric activity. 2. Relative humidity. 3. Control of room temperature.

The acceptance of these facts provides a basis for the new Herman Nelson System of Ventilation. This system provides to a nicety the requirements that science now prescribes. With this system instead of introducing a fixed amount of outdoor air into a room, out-of-door air is admitted only when required to control temperature and dissipate odors.

With the Herman Nelson System, proper indoor atmospheric conditions may be maintained automatically through proper air motion, humidity limitations, and temperature control. Such outdoor air as may be required for the removal of excess body heat and odors is tempered to

The HERMAN NELSON

BELFAST, ME.	BUFFALO	BALTIMORE, MD.	CHICAGO	NASHVILLE	TULSA, OKLA.	LOS ANGELES
PORTLAND, ME.	PHILADELPHIA	CHARLOTTE, N. C.	PEORIA, ILL.	CHATTANOOGA	DENVER	VANCOUVER
BOSTON	SCRANTON	GRAND RAPIDS	DES MOINES	NEW ORLEANS	SALT LAKE CITY	TORONTO
SPRINGFIELD, MASS.	WILKES-BARRE	SAGINAW, MICH.	MILWAUKEE	MIAMI	BUTTE, MONT.	WINNIPEG, MAN.
PROVIDENCE, R. I.	HARRISBURG	DETROIT	GREEN BAY	MEMPHIS	SPOKANE	CALGARY
NEW YORK CITY	PITTSBURGH	CLEVELAND	MINNEAPOLIS	DALLAS	PORTLAND, ORE.	LONDON
SYRACUSE	JOHNSTOWN, PA.	CINCINNATI	DULUTH	OMAHA	SEATTLE	OSLO
ALBANY	WHEELING, W. VA.	TOLEDO	ST. LOUIS	EMPORIA, KAN.	SAN FRANCISCO	MELBOURNE
ROCHESTER	WASHINGTON, D. C.	INDIANAPOLIS	BIRMINGHAM	KANSAS CITY		TOKIO, OSAKA

System— ventilation practice!

just the right degree through inner-mixture with room air—but is not preheated.

It is estimated that the Herman Nelson System of Ventilation will save approximately half the fuel bill, for it is no longer necessary to heat the large volume of cold outside air, that in the past was admitted into the schoolroom during the winter months.

Further economies result in building construction through the use of smaller boilers, reduced pipe size, and through the elimination of vent flues.

The Her-Nel-Co Ventilator is the principal equipment used in the Herman Nelson System of Ventilation. This machine together with the required amount of direct radiation will amply serve the schoolroom.

The cabinet is finished in beautiful morocco enamel with bronzed fittings. The cabinet contains the Herman Nelson Wedge Core radiator for heating the room air which circulates through it—a fan motor for quietly forcing air circulation, a filter for cleansing air of dust and dirt, a steam jet humidifier and dampers either automatically or hand controlled for regulating the admission and intermixture of indoor and outdoor air.

While the Herman Nelson System of Ventilation is a new and radical departure from all previous schoolroom ventilation practices, it is based on fundamental scientific facts long recognized by leading hygienists and engineers. It is welcomed as the most practical solution of the school ventilating problem, for it is the most positive application of the laws which modern research has discovered.

Univent System of Ventilation

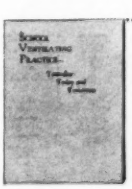
The Herman Nelson System of Ventilation is the logical development of the Univent System which has won universal recognition for its outstanding results. The Univent System meets in the simplest, most practical way, those conditions where a continuous supply of outdoor air is desired or specified by state code.

In a like manner the Herman Nelson System of Ventilation fulfills modern ventilation standards with added savings in heating installation and operation costs.

For further information, check coupon and send to The Herman Nelson Corporation, Moline, Illinois

CORPORATION MOLINE ILLINOIS

Makers of the *Herman Nelson System of Ventilation*, the *Univent System of Ventilation*, the *Herman Nelson Invisible Radiator*, the *Herman Nelson HiJet Heater*, and other heating and ventilating equipment.



THE HERMAN NELSON CORPORATION D-3
Moline, Illinois
Please send me without obligation, the book "School Ventilation Practice—Yesterday, Today and Tomorrow".

Name .....

Address .....

City ..... *State* .....
Position (Architect, School Superintendent, etc.)
.....

Do you know-

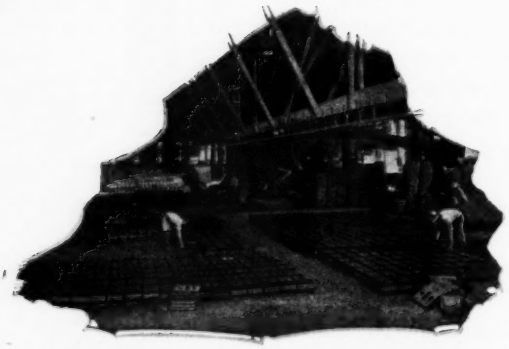
3 Separate tests on each batch of metal are made to assure the uniform tensile strength of 45,000 lb. per sq. inch in

KENNEDY Malleable Iron FITTINGS

This is No. 6. of a series explaining why Kennedy Malleable Iron Fittings protect you and your customers

Note these other good reasons for using Kennedy Fittings

Made in a 15-acre plant devoted exclusively to their manufacture
Furnished in over 1000 different types and sizes.
Annealed for over 200 hours to assure true malleability.
Precision-machined to assure alignment to 0.010-in. limits.
Extra wide chamfer and clean sharp threads to help speed up pipe-fitting.
Heavy, uniform, thorough galvanizing by hot-dip process.
Size marked on all fittings for convenience.
Large stocks maintained in warehouses located at principal industrial centers.
Readily obtainable from jobbers everywhere.
Always sold at standard market prices.



Portion of foundry in the large Kennedy plant devoted exclusively to the manufacture of Kennedy Malleable Iron Pipe Fittings

THE KENNEDY VALVE MFG. CO., ELMIRA, N.Y.

Warehouses and sales offices in principal cities

KENNEDY

VALVES-PIPE FITTINGS-FIRE HYDRANTS

TRAVELING BILLBOARDS

Tell the world you are using quality products

Revere Truck Signs are attention-getting traveling billboards, going everywhere your trucks go, telling the world you are using Revere Copper and Brass Products . . . products whose quality is becoming more and more established in the public mind.

Because Revere signs stand for quality products, and because quality products go hand-in-hand with quality workmanship, these signs create confidence in your firm.

Besides advertising your business, they will attract attention to your trucks. Seen everywhere, they will indicate that you are busy, and get you more business...because people who want things done take their work to a busy contractor.

Send today for complete details about the Revere proposition available through leading plumbing, heating and sheet metal wholesalers.

Revere Copper *and* Brass Incorporated

DIVISIONS:

Baltimore *Copper Mills, Baltimore, Md.*
Dallas *Brass & Copper Co., Chicago, Ill.*
Higgins *Brass & Manufacturing Co., Detroit, Mich.*
Michigan *Copper & Brass Co., Detroit, Mich.*
Taunton-New Bedford *Copper Co., Taunton, Mass.*
Rome *Brass & Copper Co., Rome, N. Y.*

GENERAL OFFICES: ROME, N. Y.

WALCO

Pipe Wrench

MADE BY WALWORTH (PATENTED)

- Forged 1-piece bar and frame *new*
- Fewer parts *new*
- Easier action *new*
- Greater Strength

Made especially to withstand hard use in plumbing service. To be manufactured in sizes 6 to 48 inches. Now available in 14, 18, 24 and 36-inch sizes.

WALWORTH

Walworth Company, General Sales Offices: 60 East 42nd St., New York
Plants at Boston, Mass.; Kewanee, Ill.; Greensburg, Pa.; and Attalla, Ala.
Walworth Company Limited, 660 St. Catherine Street West, Montreal, P. Q.
Walworth International Co., 11 Broadway, New York, Foreign Representative
. . . Distributors in Principal Cities of the World . . .

How to Avoid an Estimating Mistake

EVEN the rawest recruit may take a specification sheet, figure up the material required, and find its cost within the limits of a dollar. But it takes a veteran—one skilled in the calculation of intangible labor—to find the cost of installing the material. And what a responsibility rests upon the estimator. If he estimates too high, the contract goes elsewhere; if he estimates too low, it might better have gone elsewhere.

Think how much simpler, though, is the job of estimating valve installation time for those who use Ohio Brass Valves regularly. Absolute uniformity in construction and finishing enables the estimator accurately to figure make-up and installation time. For he knows that if it takes a journeyman fifteen minutes to make-up and install one type of Ohio Brass Valve, the time required for installation of other O-B types will not vary appreciably. Furthermore, he knows that he will not have to add an arbitrary figure to safeguard against the time lost in installing defective valves.

Standardize on O-B Valves—not only to take a "guesstimating" burden off your estimator, but also to take an installation burden off your journeymen. And for yourself, "there's an extra profit in the make-up".

Ohio Brass Company
Mansfield, Ohio
1324V

INSTALL O-B VALVES

"There's an Extra Profit in the Make-up"

Ohio Brass Co.

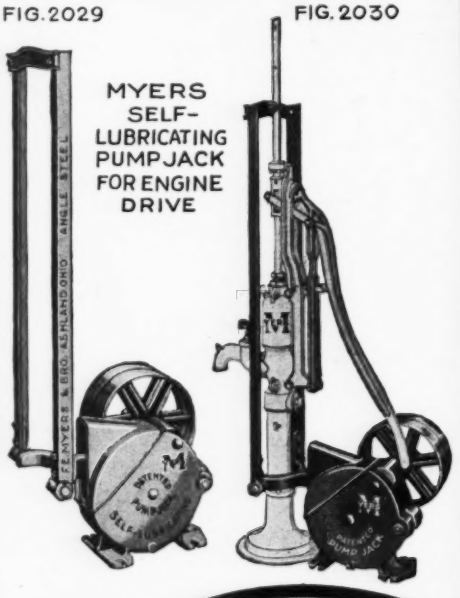
PORCELAIN INSULATORS
LINE MATERIALS
RAIL BONDS
CAR EQUIPMENT
MINING MATERIALS
VALVES

NEW YORK PITTSBURGH PHILADELPHIA CHICAGO
ATLANTA BOSTON CLEVELAND ST. LOUIS
WM. P. HORN CO: LOS ANGELES SAN FRANCISCO SEATTLE

MYERS SELF-LUBRICATING PUMP JACKS

FOR ENGINE OR MOTOR DRIVE

FIG. 2029 FIG. 2030



Dust, Dirt and Weather Proof

The difference between one pump jack and another pump jack is multiplied into many differences as months of performance grow into years. Myers Self-Lubricating Pump Jacks, engine or motor driven, stand ready to demonstrate this through service. Where reliable, low cost power water facilities are required, where pumping duties are exacting and the load is heavy, their superior construction and out-of-the-ordinary features measure up to the extreme requirements of those who are particular.

That's the reason so many of them are to be found in action nearby and at distant points.

It is not a bit surprising to find them stocked and sold by so many good dealers in so many different localities. If you are not already familiar with Myers Self-Lubricating Pumps, we will welcome the opportunity to tell you all about them. Your inquiry will be given prompt attention. Write or wire.

FIG. 2032 FIG. 2033

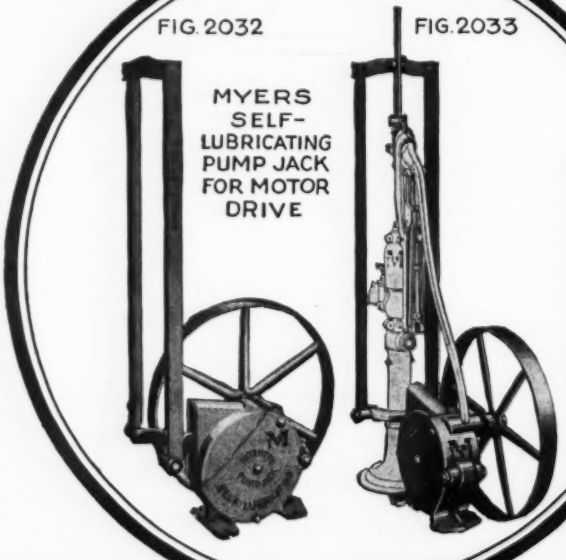
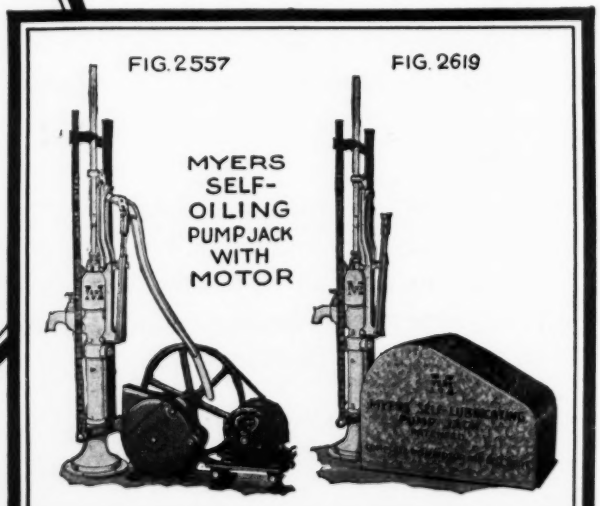


FIG. 2557 FIG. 2619



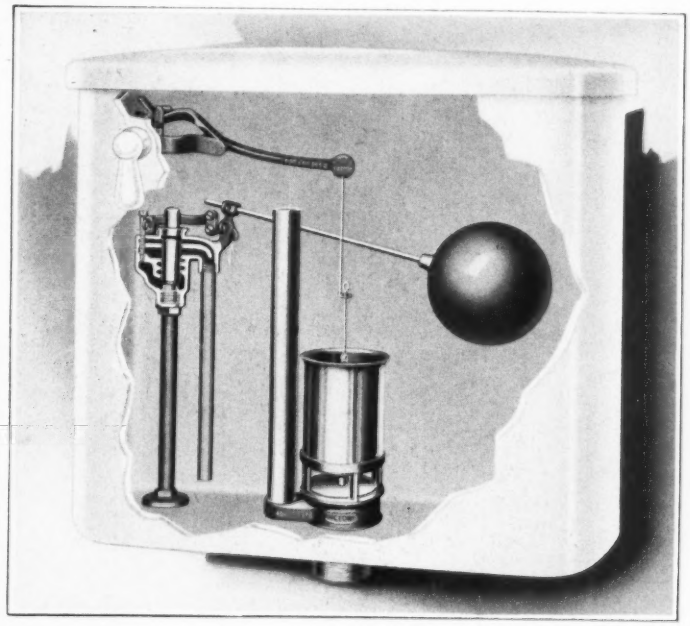
THE F.E. MYERS & BRO. CO.

ASHLAND, OHIO.

PUMPS ✣ WATER SYSTEMS ✣ HAY TOOLS ✣ DOOR HANGERS

QUIET and ENDURING

MR. PLUMBER . . .



WHAT MORE CAN YOU ASK

In all Curtin valves and ballcocks there are six points of undeniable, superior construction:

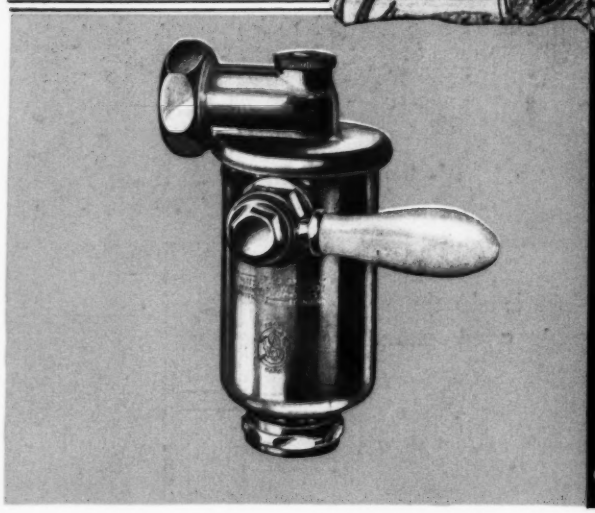
1. Long Lived
2. Economical
3. Silence of Operation
4. Cast Bronze and Copper Construction
5. Seats and Plungers Chromium Plated
6. Regulated for high or low water pressure.

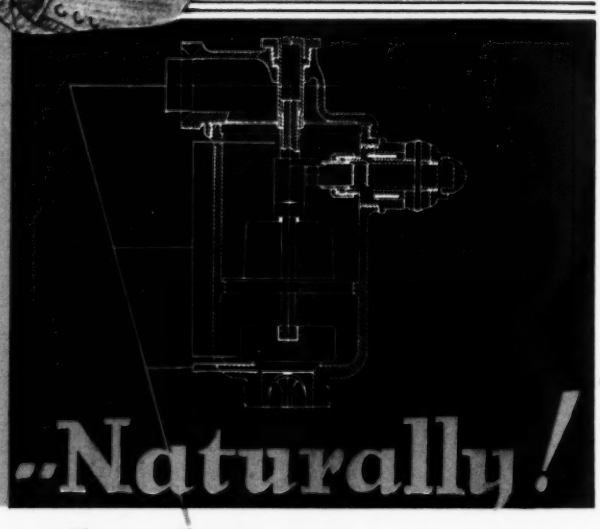
What more can you ask, Mr. Plumber?

A. F. CURTIN VALVE COMPANY
Medford Massachusetts

CURTIN
TANK NOISELESS FITTINGS

.... Self Cleansing?!





..Naturally!

It's in the design

Three important features in the design of Smith & Wesson Flush Valves make them naturally *Self-Cleaning*.

First: A full head of water flows through them at all times.

Second: There are no restrictions in the water way, no tiny holes, no air-tight fits, to catch dirt and result in ultimate clogging.

Third: The valve seat is cut at 45° angle eliminating the possibility of any foreign matter lodging there.

Hundreds of tests with all degrees of dirty water has proved it impossible to clog or choke the action of a Smith & Wesson Valve.

SMITH & WESSON
FLUSH VALVE DIVISION
SPRINGFIELD MASS.

SMITH AND WESSON FLUSH VALVES

I KNOW A PLUMBER WHO SENT A MAN AROUND TO GET WORK!
WATDYL KNOW ?
I WONDER PEOPLE WOULDN'T KNOW ENOUGH TO SEND FOR A PLUMBER!
IT'S GOIN' TO THS BOW-WOW!
YOU SAID IT!
AIN'T LIKE IT USED TO BE - YOU'VE GOT TO BE ON YOUR TOES
I CAN'T SEE THE SENSE OF RINGING DOOR BELLS
DOES IT GET YE ANYTHING?
AW NUTS!
WISH I WAS IN SOME OTHER GAME!

You'll Hear a Lot of "Squawking"—but *The Wise Owls Are Business Getters!*

MY BOSS HIRED A YOUNG SOLICITOR AND HIS BUSINESS GREW 400%
MOST PEOPLE FORGET. THEY'LL THANK YOU FOR REMINDING THEM! MY BOSS DID!
THE DAYS OF WISHING FOR WORK ARE OVER
GO TO IT, THE REWARDS ARE BIG!
SEEMS DUMB NOT TO COMB YOUR NEIGHBORHOOD FOR NEW BUSINESS — EVERY OTHER SUCCESSFUL BUSINESS DOES!
I'D RATHER SNAP INTO A LOT OF NEW WORK BY CALLING, THAN LOSE IT BY NOT!
THE WISEST THING YOU EVER SAID

Your neighborhood is *your* green pasture!

The wise business man wastes not his time listening to the calamity howlers but *goes after* and *gets* the business. He knows that there is plenty of business for the business getter—if—he goes after it.

Live steamfitters and plumbers are using accessories, renewals and repairs to *replace* the profits lost by the building slump. They know that "X" Boiler Liquid is unequalled for rapid and satisfactory repairing for leaks in high and low pressure boilers, hot water systems and *heating plants fired by oil burners.*

"X" BOILER LIQUID is a service item for every home owner, industrial plant, hotel, etc., because it stops leaks and insures uninterrupted heating service.

It means real profits for you and extra profits by suggesting needed new equipment. "X" Boiler Liquid, therefore, leads the way to more and better business.

Ring the door bells in your neighborhood. Go out and get the business. This is 1930 — the Go-getters make the money.

ORDER A CARTON FROM YOUR WHOLESALER TODAY

"X" LABORATORIES — 25 West 45th St., New York, N. Y.

"X" LIQUID

Repairs Leaks in Steam and Hot Water Heating Systems, High and Low Pressure Boilers

COMBINATION LAVATORY SUPPLY~ AND WASTE FIXTURES

Made from High Grade Red Pressure Metal
High Removable Seats : Swivel Discs
CHINA or ALL METAL TRIM
POLISHED NICKEL or CHROMIUM FINISH

Embodies the most popular and practical features of the finest fixtures and is furnished at a most attractive price.

Your Jobber Can Supply You

WISECO TRADE MARK J.B.W. INC. QUALITY SERVICE

THE STANDARD OF QUALITY
SINCE 1877

J. B. WISE, INC.

WATERTOWN :: NEW YORK

NEW YORK
PHILADELPHIA
ATLANTA
CHICAGO
LOS ANGELES
SEATTLE

Ask to See This Test for Malleable

DETROIT FITTINGS

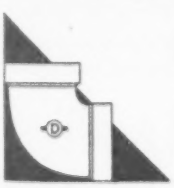
It takes the best grade of certified malleable to show a wedge test like this. The test is made by clamping a cast wedge at its heavy end and bending or curling the thin end by continued hammering until a break in the metal occurs. The more ductile the metal, the more it will curl.

Ductility in a malleable fitting is your protection against breakage during the installation of that fitting. You can mistreat a good malleable fitting with impunity. Fittings of this kind not only speed the work of installation but insure greater dependability in the completed job.

The test piece here shown was cast from the same metal as used in Detroit Malleable Fittings . . . a good air furnace iron recognized for its superiority in malleable manufacture.

When you use Detroit Fittings you know you are getting the highest grade of malleable and that your installation difficulties will not include fitting troubles.

DETROIT BRASS AND MALLEABLE WORKS
DETROIT MICHIGAN
New York Warehouse—4306 36th St., Long Island City, N. Y.



DETROIT FITTINGS

Also a full line of Brass Valves, Cocks, etc., for steam, water, gas and oil. Distributed only through Wholesalers

1855 · SEVENTY-FIFTH ANNIVERSARY · 1930

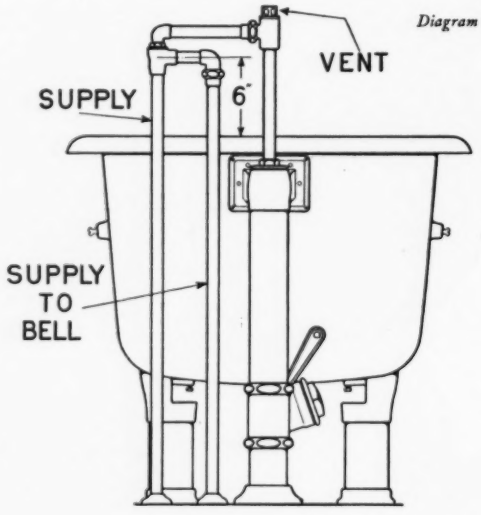
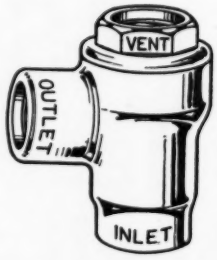


Diagram of Operation



Crane Vacuum Breaker C7830

In 1855, a fish trap . . . in 1930, a vacuum breaker

When R. T. Crane, founder of Crane Co., came to Chicago in 1855, he found that a pump was regular equipment for every plumber. The pumps were used to draw out fish which had lodged in house water lines. He devised a trap which kept the fish out, and relieved plumbers of the necessity of carrying fish pumps.

When hospital officials and sanitary specialists recently cited the need for protection of water supply lines from contamination through back siphonage, Crane engineers developed the simple and effective Crane Vacuum Breaker C7830. Exhaustive tests made under the supervision of J. I. Connolly, chief engineer of the Chicago Health Department, proved that it absolutely prevents back siphonage. It has been approved by the Chicago Board of Health and conforms with the requirements of the American Public Health Association. Plumbing contractors will find a ready sale for it in hospitals, institutions, and in many homes.

The fish trap that was the first Crane invention and the vacuum breaker that is the latest epitomize the unceasing Crane contribution to plumbing progress. In the years between 1855 and 1930, such Crane-sponsored improvements number literally thousands. Progressive contractors make it a rule to keep closely in touch with new Crane offerings by regular visits to the nearby Crane Branch. Such visits are always welcomed by Crane branch managers and representatives.

Valves CRANE *Fittings*

CRANE CO., GENERAL OFFICES: 836 S. MICHIGAN AVE., CHICAGO
NEW YORK OFFICES: 23 WEST 44TH STREET
Branches and Sales Offices in One Hundred and Ninety-six Cities

MULTICELL

Guaranteed Leak-Proof Construction Assures Uninterrupted Heating Dependability . . .

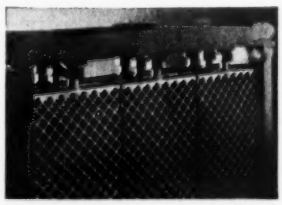
The No. 24 Multicell Unit Heater, Capacity about 900 sq. feet.

IN addition to the Multicell Guarantee against leaks, mechanical defects and failure due to piping strains, Multicell further insures uninterrupted heating Dependability; for even though a Multicell section should be accidentally damaged from some external cause, it can be quickly removed without necessitating the removal of the heater. By simply plugging the supply and return header openings with standard pipe plugs, the unit can continue in service pending repair or replacement of the damaged section.

Multicell's one-piece seamless copper heating surface, its rigid frames of all cast construction, its flow and return headers cast integral with the frame, combine to make Multicell a more substantial, more compact, simpler unit—one which contributes new standards of efficiency, dependability, ruggedness and economy to every phase of Unit Heater construction, installation, operation and maintenance.

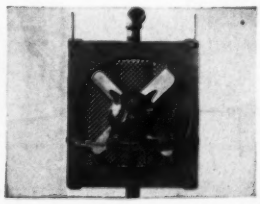
Multicell Unit Heaters are tested and rated in accordance with the standard code for testing and rating steam unit heaters, adopted January, 1930, by Industrial Unit Heater Association and the American Society of Heating and Ventilating Engineers. Specify no Unit Heater until you read "The Story only Multicell can Tell." It will be sent on request.

MULTICELL RADIATOR CORPORATION
General Offices and Factory . . . Lockport, N. Y.

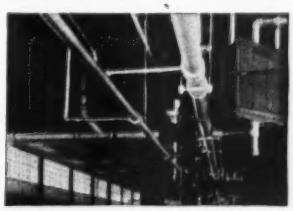


Simple Mounting facilitates removal.

All prime surface, self-cleaning.



Rear view showing fan and motor.



Typical Multicell installation.

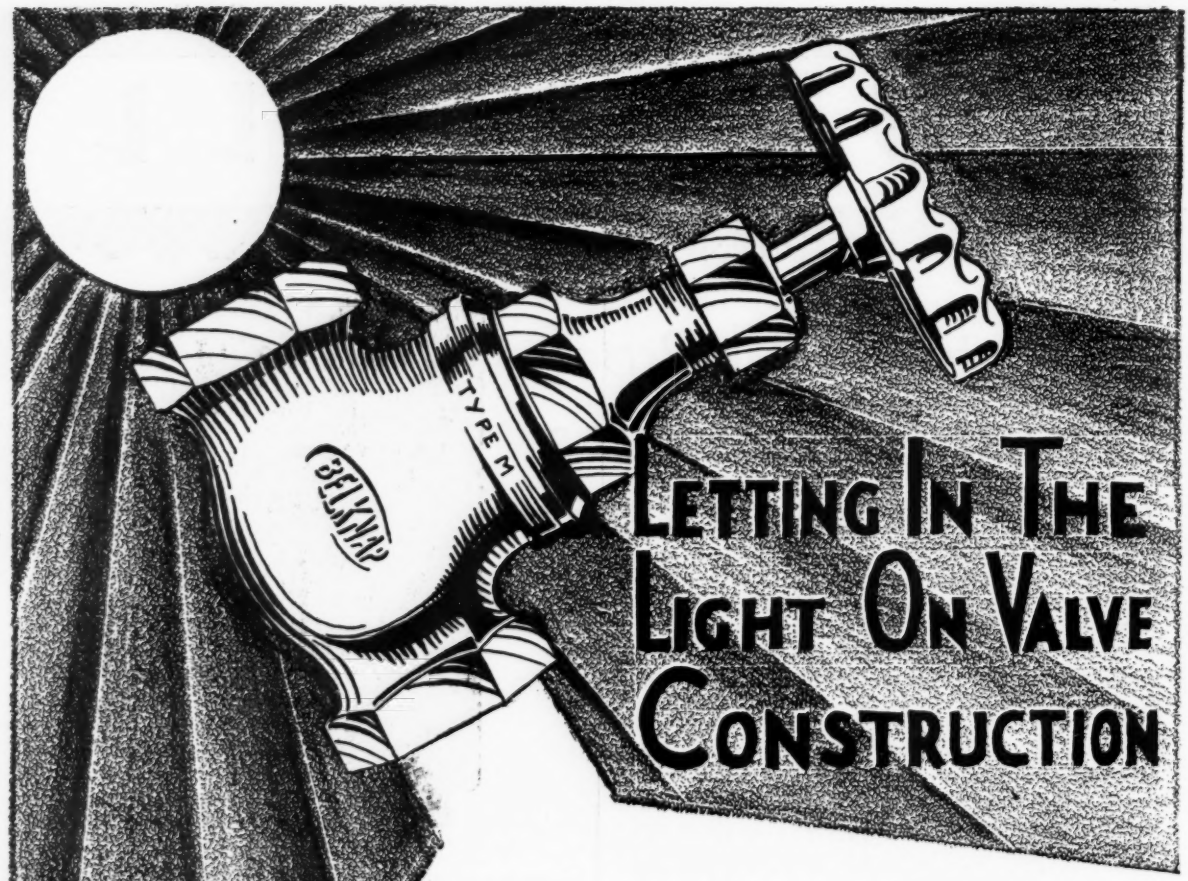
MULTICELL UNIT HEATERS

MULTICELL RADIATOR CORPORATION,
LOCKPORT, N.Y.

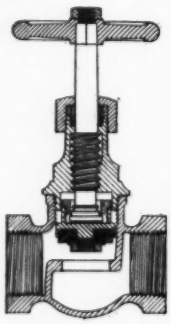
Please send me a copy of "The Story that only Multicell Can Tell."

*Name*_____

*Address*_____



LETTING IN THE LIGHT ON VALVE CONSTRUCTION



Showing internal construction of the valve.

BELKNAP

Fig. 41

Renewable Composition Disc Valve

(125 lb. pressure)

For Use on Steam or Water

Features

Full Globe Pattern.

Mineral Gland and Follower Packed.

Well Cured Renewable Composition Disc of First-Class Materials.

Popular With Those Who Demand a Good Valve at a Conservative Price

Write for Detailed Information

THE BELKNAP MFG. COMPANY
BRIDGEPORT ∴ CONN.

67 Years of Valve Manufacture

No Other Relief Valve Has This *Important* Watts Feature

Watts Relief Valves are calibrated so that they can be set in field for different pressures. This eliminates the necessity of using a pressure gauge for resetting.

These valves have a 3-ply laminated diaphragm—two plies of phosphor bronze and one of Monel metal—attached to a Jenkins disc by a water-tight cap and screw. The diaphragm disc is on the ceiling of the valve, away from the flow of water.

There are no soldered or loose parts to get out of place in

Pressure Relief Valve for Range Boilers ½-inch to 2-inch Sizes

WATTS DIAPHRAGM RELIEF VALVES

For Domestic Range Boilers, Storage Tanks and Tank in the Basement Hot Water House Heating Systems

Watts Relief Valves have about 16 times more effective area for opening the valve than in corresponding pop relief valves. That, together with the fact that Watts Valves have no guide wings to stick or bind, eliminates the possibility of the valve becoming inoperative.

Watts Valves can be made absolutely drip tight. They meet A.S.M.E. specifications. Listed as standard by the Underwriters' Laboratories.

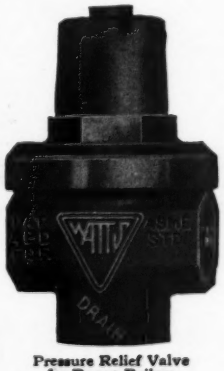
Write for Catalog No. 28, or use the coupon.

Watts Regulator Company

Makers of Water and Steam Regulating Devices Since 1874

249 Lowell St., Lawrence, Mass.

John G. Kelly, Inc., U. S. Sales Associates
210 East 45th St., New York, N. Y.
W. H. Cunningham & Hill, Ltd., 269 Richmond St., Toronto, 2, Canada



Pressure Relief Valve for Range Boilers

WATTS REGULATOR CO.,
249 Lowell St., Lawrence, Mass.

Without obligation, please send a copy of your Catalog No. 28.

Name.....

Address.....

Town.....State.....

"...KOHLER FIXTURES

exclusively, on over 350 jobs—without a defective piece, or any complaints whatever!"

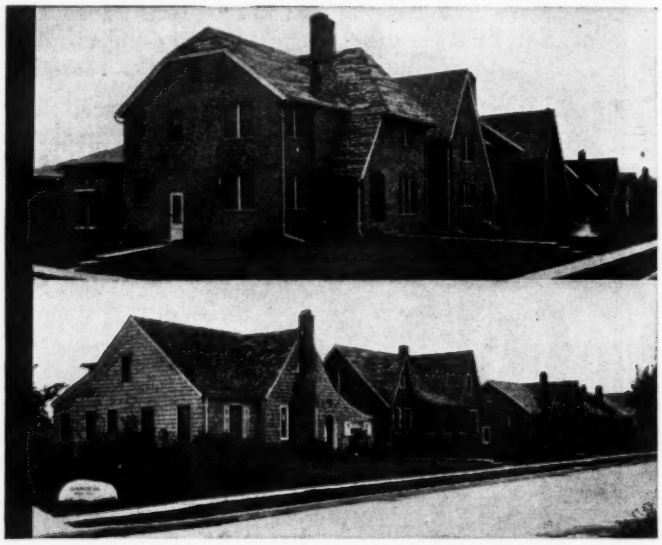
THERE were too many houses in Iowa. The surplus made new building risky. But the Ferguson Realty Company, builders in Des Moines, surveyed the situation, and decided to beat competition solely with better construction. Hardware, tilework, lighting, were of the highest quality. And Kohler fixtures, throughout, in color! . . . Ninety-seven lots sold. Fifty-seven with built-to-order homes!

"The results were very gratifying," writes Oscar L. Powell, member of the firm. "Kohler fixtures met with the instantaneous approval of prospective buyers, and speeded up rentals."

This progressive company long ago proved the wisdom of concentrating on Kohler products. "During the last five years," continues Mr. Powell, "we have used Kohler fixtures exclusively, installing them on over 350 jobs, and we have never had a defective fixture, or any complaint of any kind to make. That is truly a remarkable record, and evidence of the high standards and uniformity of manufacture of the Kohler Co. . . . We prefer Kohler pastel colors, which can be easily taken into a harmonious color scheme without increased work or worry."

Graceful in design, pleasing in clear color, soundly constructed, the quality of these fixtures goes straight through to all the hidden particulars that mean efficiency, safety, permanence. Their intelligent manufacture insures the satisfaction of your customers. Kohler fixtures and fittings come to you in perfect condition, where you want them, on time.

Kohler Co. *Founded* 1873. Kohler, Wis.—*Shipping Point*, Sheboygan, Wis.—*Branches in principal cities*. . . . Look for the Kohler trade-mark on each fixture.



All-Kohler color installations on the operation of the J. C. Ferguson Realty Co., Des Moines, Ia., owners and builders. Landis Plumbing Co., Des Moines, plumbers. Beckman Bros., Des Moines, jobbers.

VICEROY *bath.* STANDISH *vitreous china lavatory.* PENRYN *closet with* TAUNTON *seat. Fittings in the distinguished Octachrome pattern, chromium plated.*

KOHLER OF KOHLER

PLUMBING FIXTURES

OPPORTUNITY KNOCKS ON THE PLUMBER'S DOOR

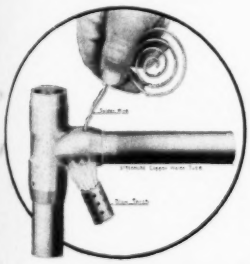
with

STREAMLINE Copper Tube and Fittings

Here is an everlasting copper installation at approximately the same price as materials that rust and corrode—an installation that gives your customer the utmost in service—an installation that requires the skill of the plumber to connect and above all, one that increases the plumber's profit and promotes his reputation.

An installation of Mueller STREAMLINE Copper Tube and Fittings in average residence buildings costs no more than any other material generally used for the purpose and is the lowest in initial cost of any non-ferrous installation. Even in larger buildings where the initial cost may be somewhat higher, if the fact is taken into consideration that copper is everlasting and its salvage value is practically 100%, even after years of use, if installed again for the same or similiar service, then its cost is very much lower. In addition, smaller sizes in STREAMLINE Copper Tube can be used on hot water lines than corresponding service in other materials generally used for the purpose.

This condition is chiefly owing to the smooth interior of the copper tube and its entire freedom from clogging rust, together with the fact that there is no recess in the STREAMLINE fittings themselves to cause turmoil. This results in an uninterrupted waterway that cuts flow resistance to a minimum.



STREAMLINE Copper Tube is not connected by threading or flaring and consequently does not require a heavy wall.

STREAMLINE Copper Tube is ideal for replacement work and when once installed lasts a lifetime without further attention. STREAMLINE Copper Tube, Soft Temper, is pliable enough to be easily bent and worked around projections. It may be readily run between studding, etc., in almost the same way as an electrician installs an electric cable. It is not necessary to tear up large areas of wall and flooring to make replacements. The removal of a base or floor board is generally all that is necessary.

A STREAMLINE installation requires less room than any other material for the same purpose.

The plumber who installs STREAMLINE in his community creates an object of extreme advertising value for himself; it invariably results in new jobs. It is a reputation builder for the plumber who installs it.

It will pay you to become thoroughly acquainted with this wonderful new installation that costs you less than any other non-ferrous material for the purpose but gives your customer a better job and one that will last as long as the building itself.

Let us send you a STREAMLINE solder instruction card and a copy of our catalog —yours for the asking.

Mueller Brass Co.

Port Huron, Mich.

Three Generations of Brass Making

Patent 1,770,852
Patent 1,770,502
Other Patents Pending

Patent 1,770,852
Patent 1,770,502
Other Patents Pending

Patent 1,770,852
Patent 1,770,502
Other Patents Pending

Patent 1,770,852
Patent 1,770,502
Other Patents Pending

Patent 1,770,852
Patent 1,770,502
Other Patents Pending

SPANG
WELDED STEEL PIPE

SPANG Copper-Clude PIPE

Spang "Copper-Clude" Pipe is demonstrating in hundreds of important installations, its ability to withstand atmospheric corrosion—and materially add to the life of *exposed* piping.

Pure copper, plus perfect pipe steel and correct, accurate, precision methods of manufacture—all combine to produce in Spang "Copper-Clude" the exceptional qualities found in all Spang Pipe —durability—sharp, clean threads, easy bending and easy flanging.

To identify this super copper-steel pipe look for the Maroon color—solid on Black pipe—in two wide stripes on Galvanized.

An important factor in the success and popularity of Spang "Copper-Clude" is its high *uniform* pure copper content—a guarantee of satisfaction.

SPANG, CHALFANT & CO., INC.

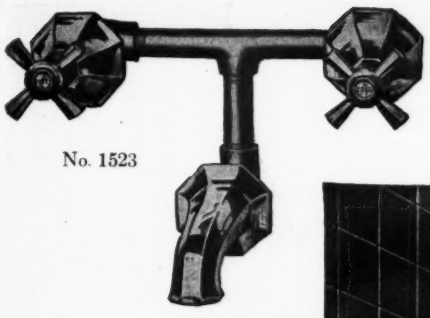
General Offices: CLARK BUILDING, PITTSBURGH, PA.

Sales Offices:

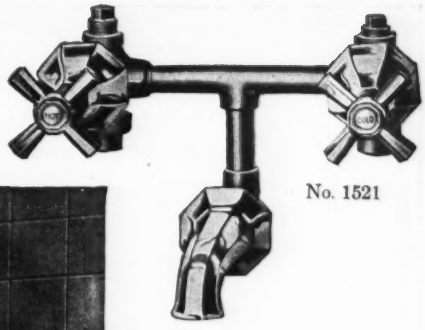
NEW YORK BOSTON PITTSBURGH CHICAGO
ST. LOUIS TULSA LOS ANGELES
DALLAS BIRMINGHAM

Welded Mills: ETNA, PA.—SHARPSBURG, PA.
Seamless Mills: AMBRIDGE, PA.

SPANG
WELDED STEEL PIPE



No. 1523



No. 1521

No. 1500

THE same reputation that has attached itself to Packard in the automotive field has been awarded to American in plumbing. And why not?

Accuracy, highest quality materials, design based upon experience with actual problems and originality and distinction in finished product are expected of both the famous automobile and American plumbing brass goods.

American meets your demands in everything; cherishes the position you have given it and intends to continue to give you the kind of brass goods that will add to its name.

A new contribution to beauty in bath equipment is found in the new Chrome line that bears the American name. See this line at your jobber's. Use it for new jobs and remodeling. Learn by experience the why of American success.

American Sanitary Mfg. Co.

ABINGDON, ILL.

for

EVERY

Hot Water Heated Home

The **KAINER**

PRESSURE GOVERNOR

A wide market awaits the alert heating and plumbing contractor who handles the KAINER Pressure Governor—a quick selling, easily installed specialty that allows a generous margin of profit on every job.

The many mechanical advantages and sound sales points of the KAINER Governor meet with an instant response from prospects everywhere.

See your Jobber or Write Today for full information.

Listed and Approved by the Underwriters' Laboratories

KAINER & COMPANY
CHICAGO
761-771 MATHER STREET
Manufacturers

You can sell this NOW

New Doherty-Brehm Humidifier offers opportunity for immediate sales and profits

Retails at $150 to $225, f. o. b. factory, installation extra, in handsome metal cabinet. Supplied also in beautiful period wood cabinet. Or for recessing into wall. Types and sizes for any building heated by steam, hot water, or vapor. Water fed in at the top spreads out over the horizontal first section, the overflow going down and spreading out over the second section, and so on until the last section is reached and a drain carries away the small unevaporated surplus.

HERE'S something new for you to sell to new customers and old. Something that few have. Something that all want. The Doherty-Brehm Humidifier. No selling opportunity in home equipment has equalled it since automatic refrigeration. Get in on the ground floor.

Sells summer and winter

You don't have to wait for building to look up to sell it. You can go out and sell it now. It sells in good times and bad. In fall and winter. In spring and summer.

First effective, low-cost humidifier

Simply, effectively, automatically, it gives moist air (correct humidity) to any radiator heated home. It is the first low-cost humidifier that actually and completely does the job.

Easy to install . . . no moving parts

You install it in the regular heating system, just like an ordinary radiator. The only extra piping is the supply pipe to feed it water and a drain to carry away the small unevaporated surplus. It has no fans, belts, motors, or moving parts. No noise, steam, or odor.

One humidifies the whole house

One will correctly humidify an average home, evaporating one to 100 gallons a day, automatically regulating the amount to needs as weather changes. Additional units, properly placed, care for any size building. And it heats while it humidifies, giving off more warmth than an ordinary radiator of the same radiating surface.

Easy payments on the **CRANE** *Budget Plan*

The Doherty-Brehm Radiator Humidifier is sold by **CRANE** only through dependable heating and plumbing contractors. You can install it under *the* **CRANE** *Budget Plan for only 10% down, the balance monthly.* Every heating and plumbing contractor should have complete specifications, installation information, and selling data.

Mail the coupon for this book

DOHERTY-BREHM HUMIDIFIER

DOHERTY-BREHM CO.
333 North Michigan Ave., Chicago, Ill.

Please send your booklet: "How to Sell the Doherty-Brehm Humidifier".

Name.....

Address.....

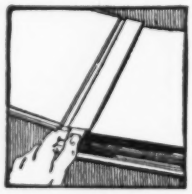
THE HANDY SPEEDLOK
Domestic Engineering Catalog Binder

Especially designed for the standardized catalog page adopted by the plumbing and heating industries

The SPEEDLOK is a quick operating catalog binder designed to fit reprints of catalog pages in "Domestic Engineering Plumbing and Heating Catalog" as well as all other catalog pages that conform to the standards adopted by the plumbing and heating industries.

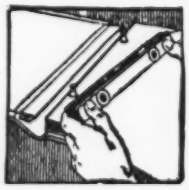
Easy and speedy operation are special features of this binder. A slight pull on the concealed bar under the top cover unlocks mechanism when sheets are inserted. Equipped with bar for removing sheets when changes are made.

Minimum capacity 1¼ inches. By simply unscrewing extension posts capacity can be extended to 2¼ inches. Works perfectly for all requirements—either a few sheets or filled to capacity.



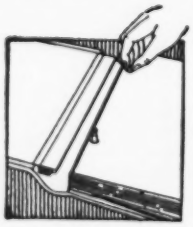
Covers are bound in heavy black Levant Grained Fabricoid, semi-flexible, very durable and attractive looking.

To unlock Binder—Pull out slide bar in top wing. Top cover will immediately fall back.



To lock Binder—bring top wing back over the posts—be sure posts fit in the holes in the top wing — then push in slide bar.

Separate the sheets where desired and slip sheets off the posts. Take out sheets or put in new ones as desired. These three moves take but a few seconds. Each operation is a natural one.



To increase or to decrease the capacity of the binder is a simple operation. The two posts are so constructed that they can be easily raised or lowered to meet the height requirements. Binder posts can be extended from 1¼ inches to 2¼ inches.

Plain White 16 lb. Bond Sheets Punched to Fit Speedlok Binder

Quantity	100	500	1000
Price	$1.00	$3.00	$5.50

Prices for larger quantities quoted on application.

For Plumbing and Heating Contractors—

Many master plumbers and steamfitters assemble working catalogs from standardized catalog sheets filed in binders.

Domestic Engineering is in position to furnish without charge, upon request, loose sheets—which are reprints from catalog pages appearing in "Domestic Engineering Plumbing and Heating Catalog"—of several hundred manufacturers. They are standard catalog page size—10⅝ x 8½ inches — are printed on a good grade of light paper and punched according to the standard adopted by the plumbing and heating industries. These sheets fit the SPEEDLOK binder.

For Jobbers' Salesmen—

The loose-leaf system reduces to the minimum the bulk and weight of catalog material required by the salesman. Only matter actually required for selling purposes need be carried in the binder. It does away with the necessity of carrying entire catalogs, booklets and circulars of various sizes and shapes.

Salesmen using the loose-leaf system have a great advantage over men not using this equipment — to say nothing of the added convenience, time and labor-saving features.

With a modernly equipped loose-leaf binder, the salesman can present his products in a more comprehensive manner than it is possible to accomplish by the old methods. Having all his material up to date in compact form and easily available, he can show latest specifications, answer questions or quote prices more readily.

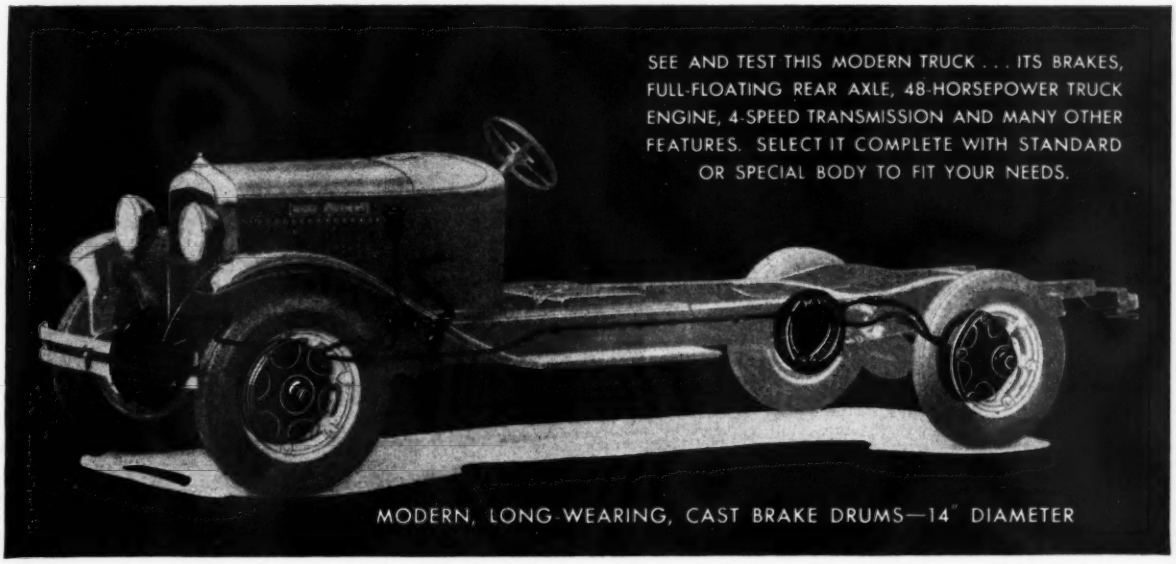
When orders for binders are accompanied by requests for catalog reprints the binders will be equipped with the sheets desired and shipped complete.

Write for full details regarding loose sheets and binders.

Price of binder—$3.00. Prices on quantities on application.

DOMESTIC ENGINEERING

1900 Prairie Avenue *(Catalog Department)* **Chicago, Illinois**


SEE AND TEST THIS MODERN TRUCK . . . ITS BRAKES, FULL-FLOATING REAR AXLE, 48-HORSEPOWER TRUCK ENGINE, 4-SPEED TRANSMISSION AND MANY OTHER FEATURES. SELECT IT COMPLETE WITH STANDARD OR SPECIAL BODY TO FIT YOUR NEEDS.
MODERN, LONG-WEARING, CAST BRAKE DRUMS—14" DIAMETER

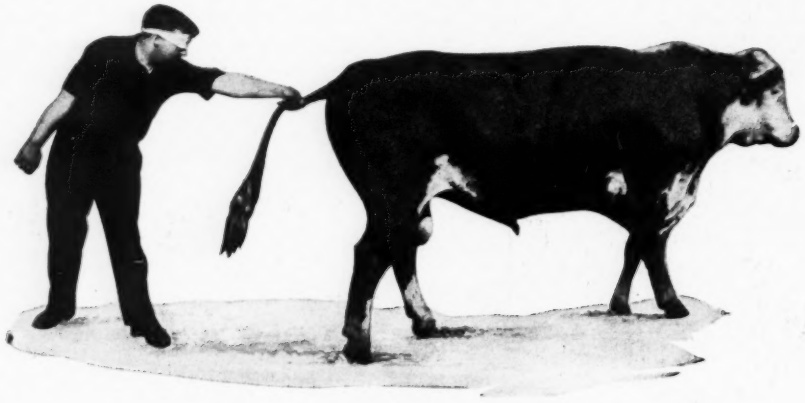
Compare the internal hydraulic brakes on the 1½ ton DODGE TRUCK

THESE SAFE, SURE, EASILY-APPLIED BRAKES ARE INTERNAL-EXPANDING AND THEREFORE WEATHERPROOF . . . THEY ARE SELF-EQUALIZING AND THUS EXERT UNIFORM BRAKING ON ALL WHEELS. THEY ARE LESS COMPLICATED . . . THEY ARE EASY TO ADJUST . . . THEY PROVIDE DEPENDABLE SERVICE THROUGHOUT THE LONG LIFE OF THIS EXCEPTIONAL TRUCK.

$595

CHASSIS F.O.B. DETROIT. DUAL REAR WHEELS AT SLIGHT EXTRA COST

DODGE TRUCKS RANGE IN PAYLOAD CAPACITIES FROM 1,200 TO 11,175 POUNDS



Just Taking a Chance—

—perhaps it's safe and perhaps it's not. But why take a chance?

It's the same when buying pipe tools. Why take a chance when genuine "TOLEDO" No. 1 and 1A's, the recognized leaders for over a quarter of a century, and genuine Toledo dies for these tools can be secured at such low prices?

Genuine "TOLEDO" No. 1 and 1A's—the first easy operating die receding tools. Tools that thousands and thousands of contractors have learned to depend upon because of their superior construction, ease of operation and long life.

Genuine "Toledo" No. 1 Plain —Cap. 1 in. to 2 in. incl.

Net Price Complete **$9.60**

West of Rockies $10.20
F. O. B. Toledo, O.

As mechanically perfect as over 30 years' experience can make them—as durable as the finest of materials, accurately machined and assembled, can insure. Don't take chances. Insist on genuine "TOLEDO" No. 1 and 1A tools and dies — and accept no substitute.

Genuine "Toledo" No. 1A Ratchet—Cap. 1 in. to 2 in. incl.

Net Price Complete **$12.00**

West of Rockies $12.75
F. O. B. Toledo, O.

INSIST ON GENUINE "TOLEDOS" —**BEARING THIS TRADEMARK**

TRADE-MARK

THE TOLEDO PIPE THREADING MACHINE CO.

TOLEDO, OHIO

New York Office: 72 LAFAYETTE ST.

Authorized Dealer GENUINE TOOLS "TOLEDO" DIES

DEAL WITH YOUR DEALER - HE SERVES YOU BEST

DOMESTIC
ENGINEERING
NOVEMBER 1, 1930

Our Industry

Two organizations which mean much to the plumbing and heating industry are changing managers.

♦ ♦

F. W. Swanson, pioneer in the trade practice movement and president of the National Plumbing and Heating Institute since its organization a year ago, has resigned.

♦ ♦

E. L. Flentje, secretary manager of the Plumbing and Heating Industries Bureau, takes his place.

♦ ♦

Mr. Swanson is carrying out what he promised, the willingness to devote a year to organizing the new Institute. His work has been difficult, as he had to find what the Institute could do to encourage acceptance of the trade practice rules at the same time that he was building the organization and methods to carry these new ideas into effective practice.

♦ ♦

The change in business—from the rather hectic time of big volume and easy sales, to lower volume and harder sales—came during the year to complicate his job.

♦ ♦

Mr. Flentje took charge of the Bureau just as it abandoned its big budget.

♦ ♦

The big field staff, national advertising and its other enlarged services were thrown overboard, leaving him with only a fraction of the money to spend.

♦ ♦

By concentrating on two or three services he was able to maintain the position of the Bureau as a helpful force in the industry.

♦ ♦

During the past few weeks, the Bureau's new plan of staging a series of dramatic sketches illustrating good and bad business practices in the plumber's office and the customer's home, have attracted big crowds in the ten cities where they were shown.

♦ ♦

Business comes now to those who go after it. This means that every executive watches expenses and like other enterprises, associations find themselves forced to prove their value. More associations mean more expenses—more traveling, more expense accounts, more time away from the job. Ideas and suggestions that attract favor when money is spent freely, look differently when the bookkeeper reports declining profit.

♦ ♦

The Institute and the Bureau, although far apart in the services they were organized to give the industry, are alike in their common need to justify their existence. Bigger opportunities mean either bigger failures or bigger successes.

♦ ♦

The route to the latter goal is the one which all would like to see these organizations travel.

◆

Now is the time to tell your customers about your product and service. If your product is right, a careful buyer is your best opportunity.

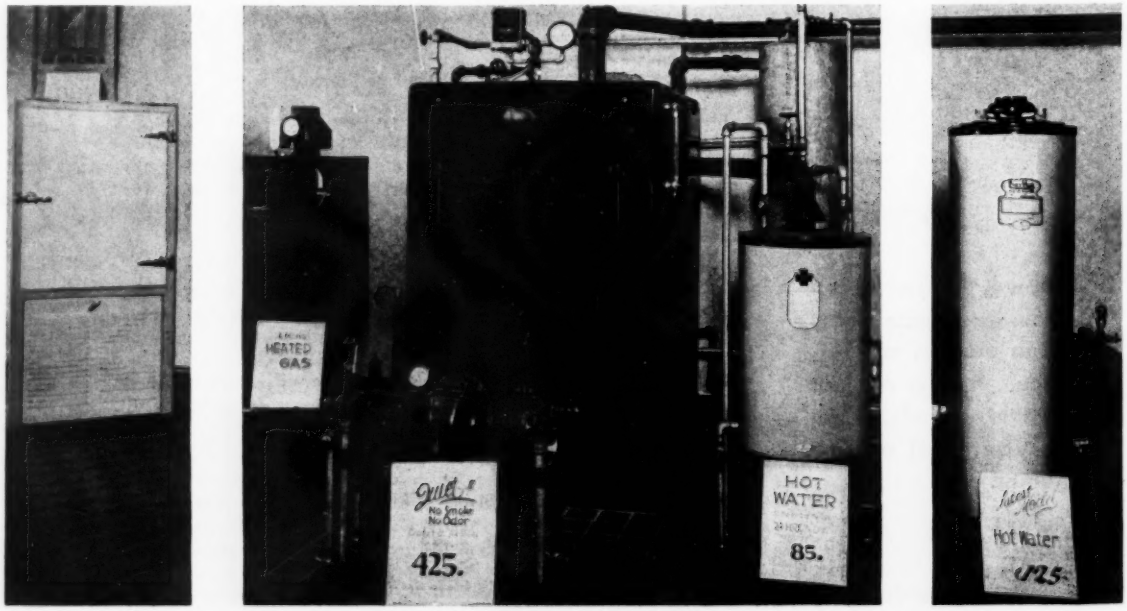
Salesmen and mechanics ready for the day's work

Chicago Contractor Holds Up Sales By Pushing Remodeling

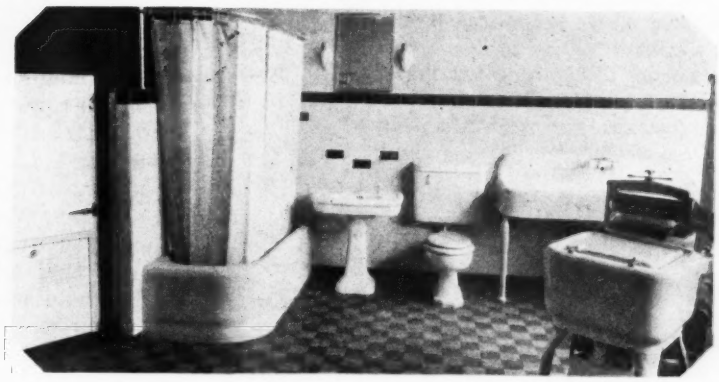
CONCENTRATION on remodeling according to Hans Jensen, head of the plumbing and heating concern at 2335 North Cicero avenue, Chicago, which bears his name, accounts for the fact that he has kept up his volume of sales thus far in 1930. This particular type of concentration has yielded Mr. Jensen 80 per cent of his entire sales for the first half of 1930. In effect, it has been a campaign for remodeling work.

Instead of expending his merchandising ammunition on the 50,000 people who comprise his complete prospect list, most of whom he knows nothing about, Mr. Jensen has concentrated on a list of 3,000, representing a group of people with whom he has had previous dealings.

An indexed card system shows the condition of the



Complete equipment, just as installed, feature Jensen displays



This plumbing display, backed by tile, is on the right as the prospect enters the Jensen store

plumbing and heating equipment in the homes of these 3,000, as well as giving an itemized account of the equipment each home contains. These cards are classified under the type of product for which the homeowner is a prospect; thus a name may appear under the classification of water heaters, oil burners, refrigeration, washing machines, and a dozen other products. This enables Mr. Jensen to direct a specific appeal to each prospect. If it is desired to send out sales letters and circulars covering dishwashers, it is a very easy matter to secure the needed names and addresses from the file under the heading of the item in question. Thus, the homeowner who is without a water heater is occasionally reminded that he should have one, and the apartment house operator who has not yet installed mechanical refrigeration for his tenants is not allowed to forget that he should make this improvement.

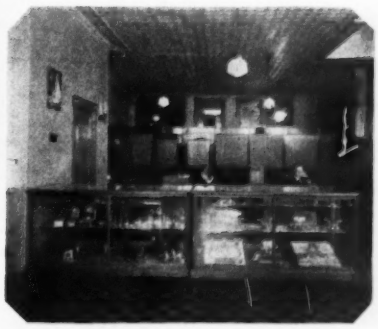
To every one of these 3,000 prospects for remodeling work, a circular and a sales letter on a certain item are sent every week. Each week a different sales appeal on a different product is used. This campaign of weekly letters is continued through the spring up until the end of June. It is resumed again in August. Such intensive advertising is bound to yield results.

The 3,000 prospects on this list, being old customers, are, naturally, well known to Mr. Jensen and he to them. Thus he has an opening wedge for any sales argument he wishes to make, and all sales literature received by this group will carry more weight and will be more apt to be remembered than that coming from an unknown firm. Also, he is not in the position of trying to sell them something for which they have no use or something they already have. The aim is to show the prospect that here is something that will be an improvement to his present plumbing or heating system; something to save him money or increase the efficiency of his present layout.

Developing Business from Old Customers

In connection with his temporary policy of developing the bulk of his business through modernization work for his former customers, Mr. Jensen said, "I find that by carefully concentrating on my list of old customers, I get in touch with a group of prospects not as much canvassed, say, as a list of people who are building homes or apartment houses, who are being so bombarded with bids and sales material from all kinds of contractors and merchants that one firm name more or less comes to mean nothing at all.

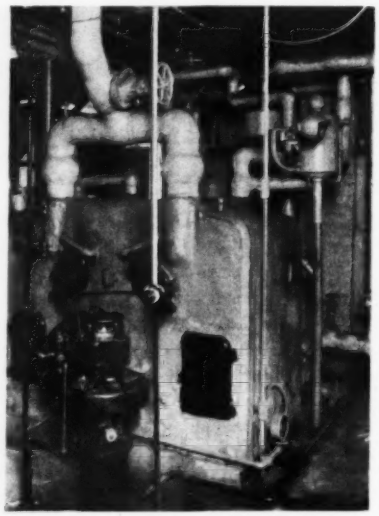
"However, my selected clientele can not forget me because of my continual flow of sales letters. They remember me. Then, when I call a prospect on the telephone and he is still not interested in buying, I can ask him if one of his neighbors might be interested in a new heating plant or an automatic refrigerator. This frequently leads to a quick sale or furnishes us with a prospect who may be approached with the recommendation of his neighbor. Having a former customer recom-



Two exterior views of the Jensen store, and the display cases for accessories—a sales aid

mend our work or our firm to his neighbor naturally gives the new prospect a greater confidence in us from the start, and greatly simplifies the initial approach.

"By listing all sales, in so far as possible, according to their source: whether the customer saw an advertisement of ours or whether we were recommended to him by an old customer, etc., we find that a large percentage of these new customers has been influenced by some one we have served in the past."



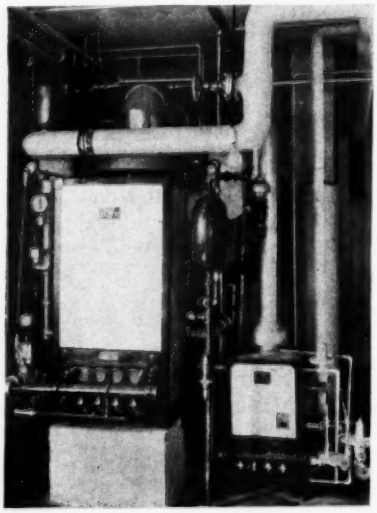
A photo of an actual installation helps to sell oil burners

Dear Sir:
Hot water in abundance – day or night – on instant notice – is a necessity, and a comfort.
The beautiful new _____Water Heater, described in the pamphlet enclosed, gives you plenty of hot water whenever you wish it, and at a far lower price than any other completely equipped automatic storage heater manufactured. It operates with the highest degree of economy attainable for practical service.
We will gladly show and demonstrate this heater to you – it is on display at our showroom. There is no obligation on your part. It is made in sizes to suit every requirement, and is obtainable on easy monthly payments.
Let us talk over your particular needs.

Yours very truly,
HANS JENSEN HEATING CO.

Dear Sir:
Sooner or later you will ask yourself – what kind of electric refrigeration shall we put in our home?
To those discriminating purchasers who look carefully into values, the _____Electric Refrigerator is of especial interest.
Here is an electric refrigerator built with the knowledge that it must be better, so that you will choose it after deliberate comparison.
In its class, the_____is bigger, has greater capacity and heavier insulation. You will find it outstandingly beautiful and unbelievably quiet.
Withal, its price is low – lower in fact than most others of its class. It is such an unusual value that we feel when you see it, you will be moved to put into your home the greatest modern convenience, electric refrigeration.
We shall be glad to have you call at our show room.

Very truly yours,
HANS JENSEN HEATING CO.



And the Jensen organization sells gas installations the same way

Uses Sales Engineers

Mr. Jensen has several salesmen. But he insists that they are not merely salesmen—they are sales engineers. "My salesmen," he says, "must speak as experts. You can't fool the prospect. He knows when an expert is talking, and he listens. He may not know anything about electric refrigeration, or oil burners—but he will know it the minute my salesman attempts to tell him

(Continued on Page 155)

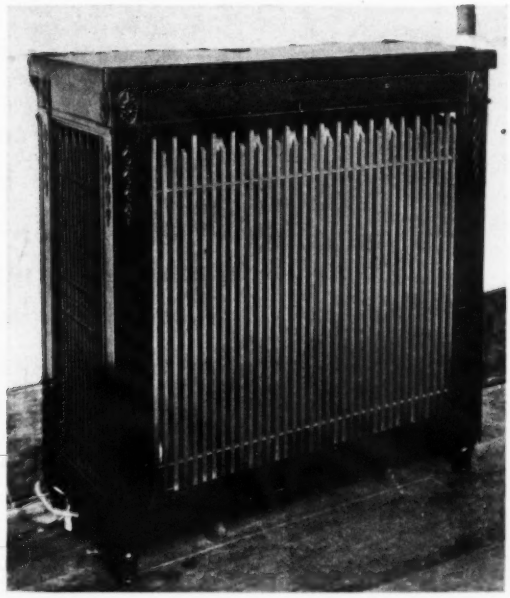


Fig. 1—This radiator and enclosure, as a type, was tested and found to give off less heat per hour, but it maintained lower ceiling temperatures and higher floor temperatures than the bare cast iron radiator unenclosed

Tests Show How Radiator Enclosures Affect Room Temperatures

IN THIS investigation, various types of bare and enclosed cast-iron radiators placed in different locations in the rooms were used, and comparisons were made on the basis of (1) the amount of steam condensed per hour, and (2) the heating effect produced in the rooms as shown by air temperatures from floor to ceiling at the center of the room.

Typical rooms were maintained generally at 70 deg. Fahr. at the breathing line, 5 ft. 0 in. above the floor, with outside air at 0 deg. Fahr. and a 5-mile wind movement, and steam was supplied to radiators at 216.5 deg. Fahr. In certain cases, of course, where a particular unit maintained either a higher or lower temperature than 70 deg. Fahr. at the breathing line special note is made of this fact in making comparisons of steam condensed per hour. Air temperatures were also taken at various distances, from 3 in. above the floor to 3 in. below the ceiling, and the surface temperatures of the cold glass and walls, as well as the floor and ceiling, were taken at definite points.

The detailed results of this investigation, including many tables, charts and figures, appear in the University of Illinois Engineering Experiment Station Bulletins, No. 169, en-

By A. C. WILLARD

Fig. 2—A radiator dipped in gray oil paint gave off 0.6 per cent more heat than a bare cast iron radiator, and the bare radiator gave off 9.9 per cent more heat than one coated with aluminum bronze

titled "Effect of Enclosures on Direct Steam Radiator Performance," by M. K. Fahnestock, and No. 192 entitled "Investigation of Heating Rooms with Direct Steam Radiators Equipped with Enclosures and Shields," by A. C. Willard, A. P. Kratz, M. K. Fahnestock and S. Konzo, and a forthcoming bulletin which will be Part II of No. 192 by the same authors. This work has been in progress since April, 1926, under a co-operative agreement between the Institute of Boiler and Radiator Manufacturers, the Illinois Master Plumbers' Association, and the University of Illinois.

The selection and installation of radiators for heating rooms, involves much more than the balancing of the heat loss of the room against the heat given off by the radiator. Certain factors bearing on the problem have been investigated at the University of Illinois during the past few years and the following summarized statements have been specially prepared to bring these items to the attention of the designer and installer of direct steam heating systems.

The factors which have the most important bearing on the successful and efficient performance of radiators in heating ordinary rooms are:

(1) Radiator locations.
(2) Types of bare radiators.
(3) Bare and enclosed radiators.
(4) Temperatures affecting comfort.
(5) Room temperatures as an index of heating effect.

Radiator Locations

(a) Radiators at Inside and Outside Walls.—Both bare and enclosed radiators located under the windows and against an outside wall condensed slightly more steam (from 1 to 2 per cent) per hour and maintained lower air temperatures at ceiling (by 1 deg. Fahr. or less) and higher air temperatures (from 1 to 3 deg. Fahr.) at the floor than the same units placed against inside walls and directly opposite the windows. In both cases the breathing-line temperatures were approximately 70 deg. Fahr.

Although the complete results of the tests discussed in this article were reported in various bulletins published by the University of Illinois, and were reprinted in full in past issues of Domestic Engineering, further consideration is being highly valuable findings. The original re great interest to the average contractor which he may apply in his every day and especially for the readers of Domestic

(b) Radiators at Floor and Ceiling.—A 21 sq. ft. standard wall radiator made up of three 7 sq. ft. sections (13 in. high) was first placed under the windows against an outside wall, and the same radiator was then placed above the windows 6 in. below the ceiling lying flat. The steam condensed in the lower position amounted to 6.02 lb. per hr. and the air temperatures were 64.9 deg. Fahr. at the floor, 73.0 deg. Fahr. at the breathing line, and 75.3 deg. Fahr. at the ceiling. The steam condensed in the upper position amounted to 5.76 lb. per hr. and the air temperatures were 42.5 deg. Fahr. at the floor, 51.4 deg. Fahr. at the breathing line, and 86.2 deg. Fahr. at the ceiling, resulting in an intolerable condition for the occupants.

Types of Bare Radiators

High and Low Radiators.—A long, low radiator (as in b) made up of three 7 sq. ft. sections (13 in. high) of the standard wall type, placed below windows

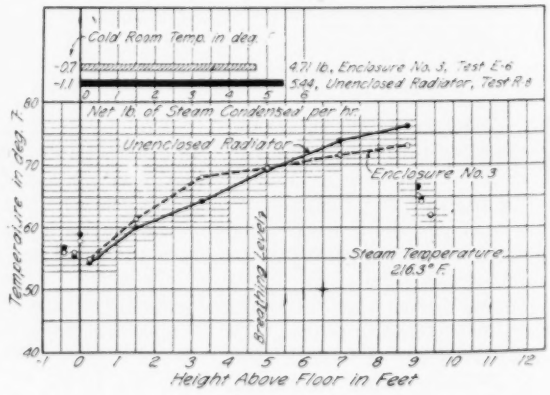


Fig. 3—Graphic results of test of radiator and enclosure shown in Fig. 1

and against an outside wall, condensed more steam (11.5 per cent) per hour and maintained lower air temperatures (by 1.8 deg. Fahr.) at the ceiling and much higher air temperatures (by 9.2 deg. Fahr.) at the floor than a 21 sq. ft. standard six-section, five-tube radiator 26 in. high in exactly the same position. The breathing line temperature was 73 deg. Fahr. in the former case as compared with 69.5 deg. Fahr. in the latter case with corresponding floor and ceiling temperatures of 55.7 deg. and 77.1 deg. Fahr. in the latter case. The outside air temperatures were practically 0 deg. Fahr. in all cases. A smaller wall radiator would have maintained a 70 deg.

given to the investigations because of the port probably was too scientific to be of who is interested in practical information work. Professor Willard, at our request Engineering, rewrote his findings with the contractor's interests and problems in mind. Actually, he prepared an interpretation of his university bulletin report. This is what you find in this article.

Fahr. breathing line temperature with approximately the same steam condensation as the tubular radiator, an even

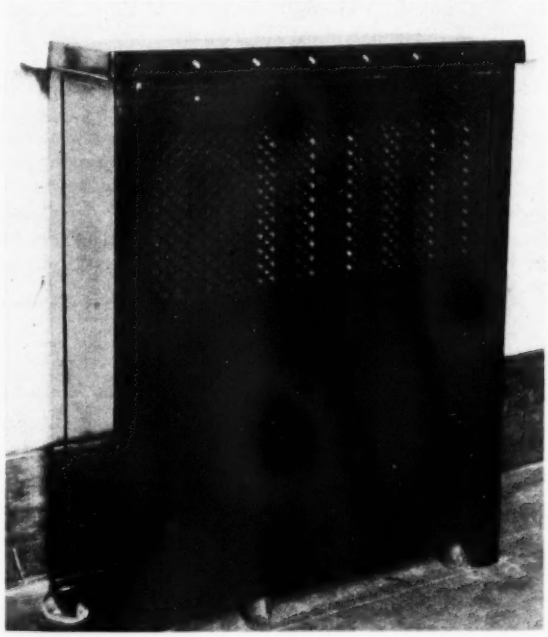


Fig. 4—This solid type of enclosure gives off less heat per hour than either the radiator and enclosure shown in Fig. 1, or a bare radiator of equal size. Also, it seriously lowered all air temperature in the room so that a larger radiator and enclosure was required

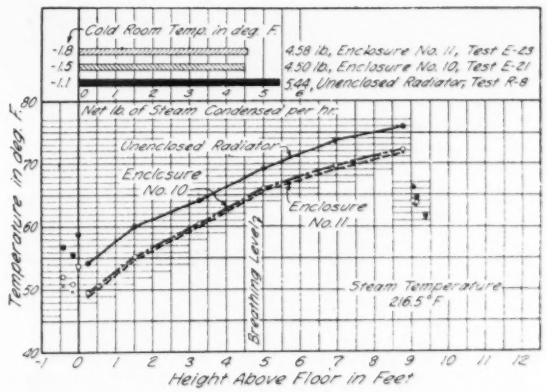


Fig. 5—Enclosure No. 11 refers to Fig. 4, and No. 10 refers to Fig. 1. Notice that the bare radiator raised the room air temperature by almost 5 deg. Fahr.

lower air temperature (by 5 deg. Fahr.) at the ceiling and also a higher air temperature (by 6 deg. Fahr.) at the floor, than the tubular radiator actually used.

Results

BARE AND ENCLOSED RADIATORS PLACED AGAINST OUTSIDE* WALLS.—There is a marked difference in the effect of different enclosures, shields, and cloth covers (Fig. 11) on the steam condensation of a radiator and on the heating effect (air temperatures from floor to ceiling) in a room. Although the steam condensed per hour is always less when an ordinary** enclosure, shield or cover is placed over a radiator, the resulting heating effect on room air temperatures may range from much better to much worse than that produced by the same radiator when bare.

(a) The enclosure (Fig. 1) [all enclosures (Fig. 11) were of metal with solid tops] condensed less steam (13 per cent) per hour, and maintained lower air temperatures (by 3 deg. Fahr.) at the ceiling and higher air temperature (by 0.5 deg. Fahr.) at the floor than the bare tubular radiator (Fig. 2) 26 in. high, 5 tubes and 6 sections long over which it was placed. See results as shown in Fig. 3. At 3 ft. 0 in. above the floor the air temperatures were 3/5 deg. Fahr. higher with the enclosure. Moreover, fully the same breathing line temperature was maintained by this enclosure, which had grilled openings over its entire front and ends through which there were ample openings (53 per cent being clear free area) with a solid sheet extending to 2½ in. above the floor at the back protecting the radiator from the cold wall.

Actual tests show that this solid sheet at the back reduced the temperature of the inside surface of the wall directly in back of the radiator 44 deg. Fahr., which effected a material reduction in the heat loss from the room. With unenclosed tubular radiators placed 2½ in. from the inside plaster wall surface, the temperature of the plaster surface was 121.0 deg. Fahr., while with the same radiator enclosed the plaster surface was 77.0

* In general, the various enclosures, shields, and covers discussed in this section produce somewhat similar effects, although less marked, when placed over the same radiators located against inside walls. It should be pointed out that the outside wall location is preferable for direct radiators in most cases.

** "Ordinary" means any of the commercial enclosures, shields, or home-made cloth covers which *extend but slightly above* the top of the radiator.

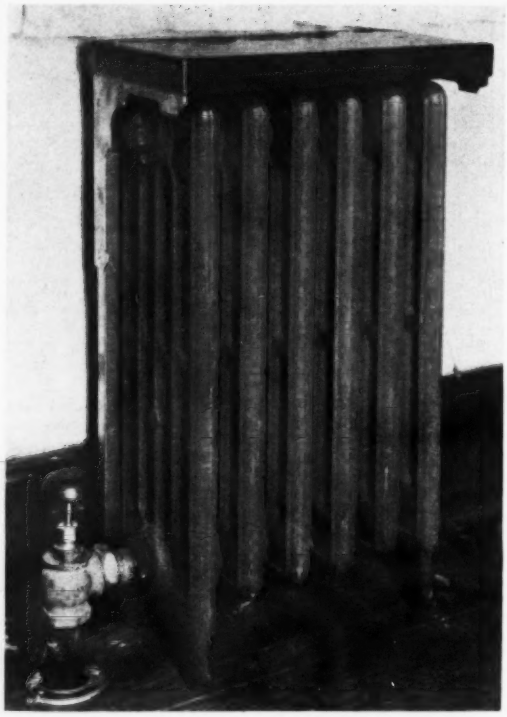


Fig. 6—This type of shield improves the operation of a radiator by maintaining lower air temperatures at the ceiling

deg. Fahr., the outside air temperature being about —2.0 deg. Fahr., in both cases.

(b) The enclosure (Fig. 4) condensed less steam (17 per cent) per hour, of course, than either the enclosure, Fig. 1, or the bare radiator (referred to in Section 6), but it seriously lowered all air temperature (by 4 deg. Fahr.) in the room so that it only maintained the room at 66 deg. instead of 70 deg. Fahr. at the breathing line. See results as shown in Fig. 5. Only by adding more radiation, requiring a larger enclosure, could the breathing line temperature be brought up to 70 deg. Fahr. It is true that with such a large radiator and enclosure the room was heated to 70 deg. Fahr. with less steam (12 per cent) condensed per hour, and the air temperature at the ceiling was 2.5 deg. Fahr. lower and 2.5 deg. Fahr. lower at the floor than with the original smaller bare radiator. This enclosure had a restricted opening (37 per cent clear free area) in the upper part of the front only, and no outlet openings in the ends. There was a solid sheet at the back as in the case of the enclosure shown in Fig. 1.

(c) The metal shield (Fig. 6) with a solid sheet at the back similar to the back sheet of enclosures (a) and (b), and with a full shelf at the top but no front or ends condensed less steam (11.5 per cent) per hour, and maintained lower air temperatures (by 2 deg. Fahr.) at the ceiling than the bare tubular radiator (referred to in Section (a)). See results as shown in Fig. 7. At the same time the shield maintained the same breathing line temperature (70 deg. Fahr.) and about the same air temperature at the floor as the bare radiator. The reason that the shield did not do as well as the enclosure with large free areas in front and ends in reduced steam condensation and improved air temperatures in the rooms is probably due to the fact that the back of the shield was fitted (as furnished by maker) tightly against the radiator, whereas there was a 1-in. air space between the back of the enclosure and the radiator.

(d) The cloth covers (Fig. 8 shows a 6-in. cover), 6 in. and 12 in. deep respectively, fitted over the top of the tubular radiator (referred to in Section (a)) caused less steam to be condensed (15.5 per cent for 6-in. and 32.5 per cent for 12-in. cover) per hour than when the radiator was bare. See results as shown in Fig. 9. At the same time, these covers reduced all the air temperatures in the room (by 5 deg. at ceiling to 2 deg. Fahr. at floor for 6-in. and by 11 deg. at ceiling to 5.5 deg. Fahr. at floor for 12-in. cover) so that the breathing line temperatures became 66 deg. Fahr. for 6-in. covers and 61.5 deg. Fahr. for 12-in. covers instead of 70 deg. Fahr. as with the bare radiator. There was no metal shield between this radiator and the wall when the cover was applied. As in the case of the enclosure in Fig. 4, it was only by adding more radiation when such covers were used that the breathing line temperature could be brought up to 70 deg. Fahr. When 50 per cent was added to the radiator area, and a 12-in. cover placed over the top of the larger radiator, the breathing line temperature was brought up to 70 deg. Fahr. less steam (9 per cent) was condensed, and the air temperature at the ceiling was maintained 2.5 deg. Fahr. less and at the floor 2 deg. Fahr. higher than with the smaller original bare tubular radiator referred to in section a. Results of tests of a special cloth shield (Fig. 10) extending down the back of the radiator are also shown in Fig. 9.

It is worthy of note, however, that in mild weather such a cover would help materially to prevent overheating a room if no other means of temperature control existed. Such covers would, of course, have to be removed or rolled up in severe weather to allow the bare radiator to adequately heat the room.

Enclosures and Shields on Long, Low, Narrow Radiators

(e) The types of enclosures and shields, similar to those described in (a) and (c) above, when placed over a long, low, narrow radiator such as cast-iron wall sections produce somewhat similar effects in the way of slightly decreased room temperatures as compared with the same low radiator when bare. The beneficial effects are by no

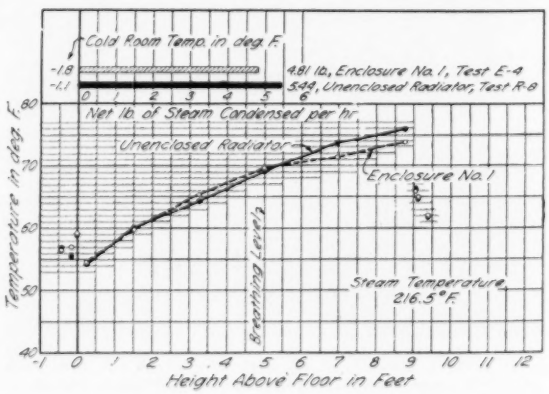


Fig. 7—The actual results of the test on shield shown in Fig. 6

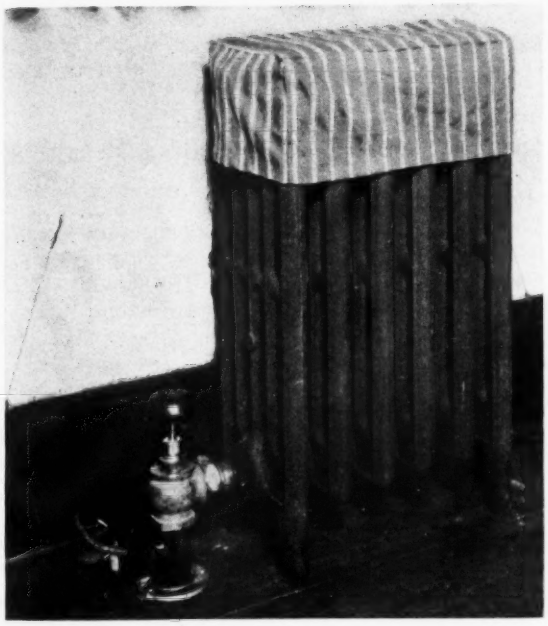


Fig. 8—This type of cover reduces the efficiency of a radiator by from 15.5 per cent to 32.5 per cent for depths from 6 in. to 12 in. respectively

means as marked as in the case of a short, high, wide radiator equipped in the same way and in the same location, and the use of such covers and shields is not very effective on long, low, narrow cast-iron radiators.

Paint for Radiators

(f) The surface finish of an unenclosed radiator may have a marked effect on the heat emission of the radiator. A nickel-plated, cast-iron radiator will give off much less heat than a plain unfinished cast-iron radiator of exactly the same type and size. The use of aluminum or gold bronze, consisting of minute flakes of metal, as a surface finish on a radiator also reduces the heat emission of the radiator, whereas any ordinary pigment paint with an oil base has no appreciable effect on the heat emission as compared with exactly the same type and size of plain unfinished cast-iron radiator. Most enamels are similar to oil paints in their effects on heat emission.

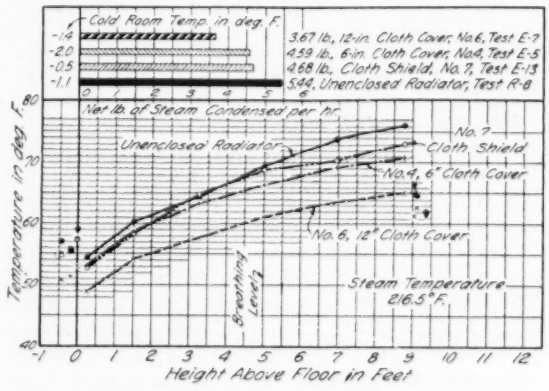


Fig. 9—These are the test results corresponding to the Fig. 8 enclosure

Tests on actual 3-column, 6-section, 32-inch high, cast-iron radiators each of 27 sq. ft. area showed the following relative values for total heat emission: (1) bare iron surface = 100 per cent, (2) gray oil paint surface = 100.6 per cent, and (3) aluminum bronze surface = 90.1 per cent. Radiator No. 1 (Fig. 6) was left with the natural foundry finish, No. 2 was dipped in gray paint, and No. 3 was given a coat of bronze by brush as in the ordinary installation. The effect of surface finish becomes less and less important as the radiator becomes complicated in construction. The maximum effect is secured with a simple horizontal cylinder or tube which may show an increase of 60 per cent in heat emission on changing the surface finish from bright tin or nickel to a dull gray oil paint.

Paint for Enclosures

(g) Since enclosures act as secondary heating surfaces, those interior parts which face, or "see," the

Fig. 10—A cloth shield which, as indicated in Fig. 9, is much better than the cover of Fig. 8, but still is not as good as a bare radiator for giving off heat

heated room should be painted with an oil paint, and indeed the whole enclosure produces a better heating effect if finished with an oil paint.

Actual tests of the effect of painting simple enclosures and shields on the steam condensation and heating effect of a long, low, narrow wall radiator confirm the preceding statement. Merely painting a galvanized iron shield over a wall radiator with a black oil paint increased the steam condensed per hour by 9 per cent and raised all room temperatures about 1.5 deg. Fahr. It is probable that with a higher radiator the room air temperatures would have been increased more than 1.5 deg. Fahr by the shield. With a more complete enclosure on a long,

(Continued on Page 106)

Would the plumbing and heating industry benefit from telling the public in advance what it will have to pay for repair work?

Would the contractor doing jobbing work be better off if a flat rate basis was worked out for the industry?

Would the public get over its feeling that it is being overcharged? ?

The above questions were submitted to contractors all over the country, and an unusual number of responses were received. The replies indicate differing opinions, of course; but that is no bar to a solution of one of the most troublesome problems of the industry and one that affects public opinion strongly. Every reader is invited to join in this nation-wide discussion on the idea of a

Flat Rate Basis for Repair Charges

"A Flat Rate Would Be Almost Impossible"

Have your letter of September 24, relative to a flat price for repair work on plumbing and heating. This would seem to me to be almost impossible in the plumbing and heating business as about every piece of equipment you repair is of a different make and the conditions are always different, much different from what it is for an automobile of a certain standard make where standard parts are to be used.

For instance a person is called out in a country town or a small city. Plumbers and steam fitters do all classes of work including plumbing, heating and sheet metal work. A call comes to the office for a man to repair a toilet. The best information that you can find is that it is a leak or running all the time. While the mechanic is there they will want faucets packed or a tin roof soldered or conductors repaired.

The customer is better off under the present system

As a whole I would say the customer is better off under the present system of charge, if they could be led to believing so.

Greenfield, Mass. (Signed) J. B. Kennedy.

"Flat Rate Basis Is Very Successful"

Flat rates on plumbing and heating repairs would, in our opinion, eliminate many of the evils of this business.

However, it has been our experience, which is based upon a period of years, that flat rate work can only be applied to certain classes of plumbing and heating work to the advantage of the consumer and the merchant. We, ourselves, operate on a flat rate basis on various types of work, and we found this to be very successful in selling services.

We operate on a flat rate basis on various types of work

If you have a flat rate and your sales presentation

is right, the customer will see the advantages of this method and appreciate the value of service rendered.

San Francisco, Calif. THOMAS BRODIE, INC.
(Signed) John D. Schlitz.

"A Flat Rate Is Not Practical"

In reply to your request for my opinion regarding a flat rate for repair work in our industry, I wish to submit the following:

A flat rate in our industry is not practical for a number of reasons, i.e.

First, every repair job is different from every other repair job. This means that it might take one hour to repair a pump in one building and three hours to repair the same type and size of pump in the building next door, even though the trouble appeared to be the same in each case.

Second, the repair for which the customer calls is very often added to because of conditions beyond our control. With the water shut off, it is not good sense to hunt up the owner to get a written order for a small piece of piping or a fitting.

Third, who would establish a flat rate? If the local association, how about the non-member? Could he be controlled?

Fourth, if the flat rate were established who would live up or down to it? Judging by the caliber of some of the licensed plumbers of my acquaintance I would not be very optimistic of good results.

Fifth, without dealership in given territory, every plumber repairs every make of every item used in the industry. It is quite obvious that this is a major obstacle.

Further, I would like to draw your attention to several points of difference regarding the flat rate in the automobile business and in the plumbing business.

First, an automobile is driven into a garage for repairs, whereas a plumber must go to his repair job. This effects a tremendous difference as can be readily seen by any person conversant with the business.

Second, an automobile dealer flat-rates work on the car for which he is representative, while the plumber works on all plumbing.

Third, plumbing repairs must be made rapidly, without delay, and cannot be held up as automobile repairs are.

I believe that investigation will show that, even though the repair business has increased, the flat rate is not responsible.

I beg to point out also, that the repair work done under flat rate is not up to standard because the workman can always beat the inspection in order to get at the next job.

I wish to offer my solution to remedy the lack of public confidence in our industry.

It is my belief that no person or industry can have the confidence of the buying public unless the price of the commodity or service rendered is on a par with its value.

The plumbing shop that is doing a large, or small, volume of new construction work on a very close margin of profit, or even a loss, and then overcharges for its repair work in order to make up is not honestly run and deserves no confidence from anyone.

I believe that an itemized invoice of every job, based on a standard list, treating every customer in each class exactly the same is the most equitable way of doing repair work, and results in building up confidence and good will.

Render itemized invoice on all repair work

By class, I mean the householder who has a small repair job at long intervals, the apartment building or office building with a steady flow of repair work, and the factory buildings with larger repair volume and larger sales of equipment. Each class should be given a discount off the list in proportion to their volume.

My personal experience has proven the above as I have been doing business this way for a number of years, with repeat orders being the mainstay of my business.

I thank you for the opportunity of expressing my views in the matter and trust they will be accepted in the spirit of co-operation in which they are offered.

Kalamazoo, Mich. J. C. Wall.

"You certainly hit the nail right on the head, for if there ever was a problem that should be solved, you have brought it to a point," reads one letter. "Highly impractical," says another.

What do you think? The discussion on this topic is open to every one. Write us.

"Flat Rate Could Probably Be Arranged in Some Cases"

A flat rate for plumbing and heating repair work could probably be arranged to work out very satisfactorily in some cases.

For example, replacing a hot water tank either with or without a side arm heater could be made on a flat rate basis. At present we make a flat rate for installing 20- and 25-gallon automatic storage tanks, replacing furnace coils where it is not necessary to renew the circulating lines.

This might work out with the larger shops but as long as the small one man shops are in existence there seems to be a long road ahead before this can be done. The majority of these places do not know their costs and persist in taking work at very low prices and if they get their wages out of a job they are satisfied.

There seems to be a long road ahead before this can be done

It seems doubtful if this plan could be applied to the plumbing and heating industry for a long time.

We trust that this will give our view of the matter and we thank you for the opportunity of expressing our opinions.

Alliance, Ohio. ELLIS & McDONALD, INC.
(Signed) Howard E. Ellis.

Accurate Estimates Lead to Profits

Estimating quotations is a phase of plumbing and heating contracting that demands the utmost attention. Many a contracting firm has failed because of a willingness to take a chance on estimates or because of a lack of knowledge on the subject

"With previous costs as a basis, the labor for any certain type of building can easily be estimated." This of course implies a filing system that a man can get at without difficulty

WHEN figuring the ordinary run of work, there are certain fixtures which are used time and again, and to save time the estimator should have various sheets, with this pertinent information typed thereon, so that when making up an estimate he can deal with "complete fixtures" in each case rather than go to the trouble of carrying out prices for the individual items.

For example, he may be using the ABC combination, in which case this sheet would carry the following information:

ABC closet combination complete..... $.....
Freight on same from..... .....
Cartage from depot to shop..... .....
One plain iron closet bend with collar..... .....
Two closet bolts and two closet screws..... .....
Putty ....
Lead and oakum for two joints..... .....

Total $.....

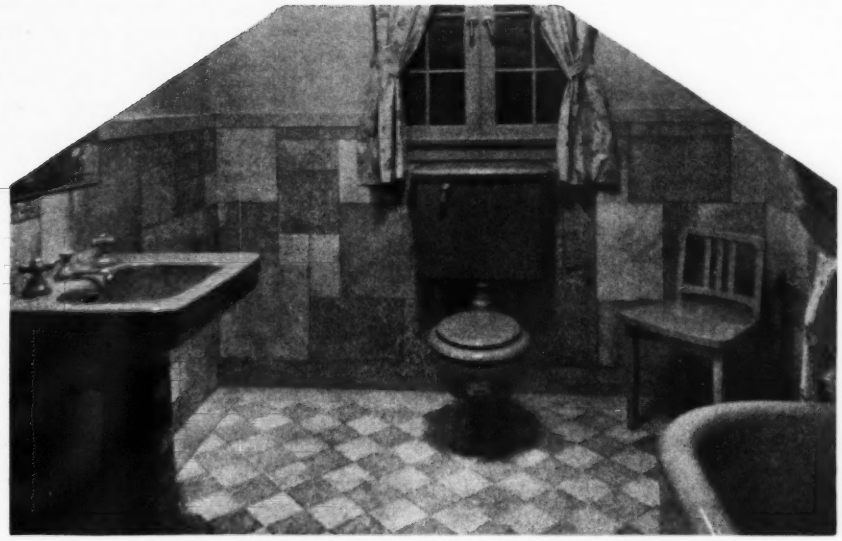
The above comprises a vitreous china tank, vitreous china wash down bowl, a birch mahogany seat with cover, and a nickel-plated supply pipe and nickel-plated flush ell.
If with white seat No. 123 add to above..... $.....
If with white seat No. 456 add to above..... .....
If with white seat No. 789 add to above..... .....
If with stop valve in supply, add..... .....
If with all-white flush elbow, add..... .....

It is just possible that several other types of closets may be used in the usual course of business, in which case each of them should be treated in the above manner.

Also, if lead bends are used, the fixture price with lead bends should be compiled and carried out in the same manner; for example:

ABC closet combination complete..... ..... $.....
One lead bend (list $... Discount 15 per cent) .....
One brass ferrule..... .....
One closet floor flange..... .....

This is Part 3 of a series of stories on "Estimates and how to make them," by W. W. Hughes. Part 1, "When the Bids are Opened," appeared in our issue of July 26. The second installment, "Loss in Profits Starts at the Estimator's Desk," was published in the October 4 issue



This typical bathroom should offer no difficulties to the estimator if figured in accordance with the method outlined at the beginning of this article

Wiping solder ....
Putty ....
Lead and oakum for one joint..... .....
Two closet bolts and two closet screws..... .....
Freight on closet from..... .....
Cartage from depot to shop..... .....

Total $.....

The bathtub page will be a complex proposition, with tubs on feet, tubs on base, tubs to tile into corner or recess, and tubs enameled outside as well as inside.

With the bathtub on feet, we have the following factors to consider in arriving at our complete fixture price:

One 5-ft. white enameled bathtub on feet.... $.....
One No. — combination faucet..... .....
One pair N. P. offset annealed supplies..... .....
One N. P. waste and overflow with trap..... .....
One 1½-in. galvanized nipple and collar nut .....
Freight and cartage..... .....

Total $.....

If with galvanized iron supplies and threaded brass couplings, instead of supply pipes, deduct ..... $.....

From the above start, we would list tubs of various lengths, both those on feet and those on cast iron bases.

Then we would list the tubs that tile into place in about the following manner:

One 5-ft. recess bathtub..... $.....
One No. — waste and supply combination... .....
One drum trap with ell, nipple and nut..... .....
Freight and cartage ....

Followed by tubs of greater length and tubs to tile into corners instead of recesses.

Then the addition for various appliances, as for example:

If with No. — two valve corner shower with rod and curtain, add..... $.....
If with No. — two valve recess shower with rod and curtain, add..... $.....
If with No. — mixer combination shower with rod and curtain, add..... .....
If with No. — mixer combination shower with rod and curtain, add..... .....

And thus on, almost without end, listing the various fixtures and appliances peculiar to the community, until the whole subject of bathtubs has been pretty well listed and priced.

Some architects specify and insist upon the installation of "Safe Pans and Wastes," particularly when bathrooms are located over decorated living rooms and the labor and material (sheet lead and galvanized iron waste pipe) for this work should be included.

The lavatory page is a little less complex, featuring the following good old standbys:

One No. — 18x21 apron lavatory..... $.....
One 1¼-in. NP brass "P" trap with PO plug .....
Two No. — basin bibbs with speedy connections ....
One galvanized nipple and collar nut 1¼ in. .....
Cartage and freight..... .....

Total $.....

One No. — 20x24-in. pedestal lavatory..... $.....
One 1¼-in. NP brass "P" trap with PO plug .....
One No. — combination waste and supply fitting ....
One galvanized nipple and collar nut 1¼ in. .....
Cartage and freight,..... .....

Total $.....

Add for NP supplies with stops..... $.....
Add for NP supplies less stops..... .....

And to the above might also be added one or two china lavatories and several of the more generally used combination fittings.

The sink page must show a variety of sizes and patterns, starting out with:

One 20x30-in. roll rim sink and back..... $.....
Cartage and freight..... .....
Two NP sink faucets..... .....
One 1½-in. NP "P" trap less PO plug..... .....
One galvanized iron nipple and collar nut... .....

Total $.....

Add for combination faucet with soap dish $.....

Then list the roll rim and apron sinks in the various lengths, with additions for plain or enameled legs, and for sinks in colors; also acid resisting.

The laundry tray may be either the two compartment or the three compartment, listing it as follows:

One two-compartment laundry tray..... $.....
One steel stand for same..... .....
One combination faucet..... .....

One cast iron trap with nipple to waste tee .....
Cartage and freight..... .....

Total $.....

Of prime importance is the hot water tank and heater and the page devoted to these items will be rather comprehensive.

We must list the various combination heaters and tanks which are in general use in our own particular city or district, adding to each the usual amounts of

Compare the specifications with the plans, and, if any discrepancies exist, consult with the proper party and secure the correct information

vent pipe, gas supply pipe, and water piping, together with such valves as may be required.

With either the combination heater and tank or the instantaneous heater, the contractor should include a "tempering tank" with all necessary connections.

First, merely as a storage tank to temper the water from the city mains to the temperature of the basement before passing through the heater.

Second, when used in connection with a coil in the fire pot of the heater and with the supply to the heater taken from this tank.

Third, when used in connection with an indirect heater in steam and vapor installations and with the supply to the heater taken from this tank.

Other combinations must also be listed, the ordinary hot water storage tank, which, when complete, includes the following:

One 30-gal. extra heavy or standard hot water tank ..... $.....
One stand for same ....
One brass tube for cold water supply inside of tank ....
Two boiler union elbows..... .....
One compression hose end drain valve..... .....
One compression stop cock for cold water supply ....

Total $.....

Added together, the above items comprise one unit to be used when estimating.

Also side-arm gas water heaters, with vent pipes, gas supply pipes and water piping; wood or coal burning heaters with smoke pipe and water connections, etc.

On this page there also may be listed the "Relief" valves installed on hot water tanks and heaters.

Soil pipe and fittings appear on another page, with sizes, list prices, discounts and net prices.

As a guide, the estimator should keep costs on all installation, with particular attention to the various quantities of pipe, with fittings, hangers, lead, oakum, etc.

Naturally there will be some variation. Short lines of pipe with numerous fittings will show higher "fitting" costs than long lines with few fittings.

In general it will be found that 100 per cent of the cost of the soil pipe represents the cost of the soil fittings, lead, oakum and gasoline, but costs of the actual fittings should be listed and the percentage used only as a check.

Floor drains, back water valves, sewer gate valves, and other special appliances used in connection with the soil pipe work should be listed as separate items.

Likewise if cost is used as a basis, wrought iron pipe shows a higher cost than merchant pipe, and fittings should be estimated on the cost of the same amount of merchant pipe and not on the wrought iron pipe.

In general it will be found that 50 per cent of the cost of the merchant pipe represents the average cost of the fittings and hangers used in connection therewith.

And while it is all right to use the percentage method

The estimator must know his men and the estimate must be based on exactly what his own men can do, plus a factor for safety

for the smaller sizes and also in checking the larger sizes, it is necessary to check the actual number of fittings required for the larger sizes and make due allowances for changes in construction which will necessitate additional fittings.

Covering and packing is not a large item in the majority of installations, but does appear in some specifications. As a rule, two kinds of pipe covering are used in plumbing installations, an anti-sweat covering for the cold water pipes and wool felt covering for the hot water pipes.

The estimator will list the amount of each kind and size of covering required, add the necessary amount of asbestos cement and canvas for the fittings, plus the labor necessary for the installation and incorporate this amount in the estimate.

It is also possible that "deadening" may be required; in some cases it is necessary that all stacks and risers be packed in deadening felt to overcome the noise of falling water and in other cases the installation of "deadening" material under the entire bathroom floor is a part of the specification.

Estimating is merely a matter of computing the quan-

(Continued on Page 153)

One plumber, located in the vicinity of the summer homes and resorts at Cape Cod, uses over 600 gallons of kerosene each fall in the protection of traps in these vacant summer homes and hotels against freezing

Vacant Houses Now Need Protection Against Winter

By S. M. BARR

This year more houses are vacant than usual and in each one the plumbing system must be properly drained so as to guard against freezing. The season for this type of work is now here and it offers a splendid opportunity for many master plumbers to secure some good fill-in business

BEGINNING the middle or latter part of September, and continuing well into November, the plumbing trade in the colder parts of the country becomes very busy with a line of work that their fellow contractors of warmer climates know nothing or little about.

If proper precautions against the freezing of water in traps and supply pipes are not taken, very great damage to the plumbing system can easily occur. The range boiler, water front, supply pipes, traps and water closets might, from freezing, not only cause great damage to the plumbing system itself, but great water damage to the house and its contents.

The protection of closed houses is of particular importance along the New England coast. This is a great vacation country, and there are thousands upon thousands of homes, running from a modest little cottage to summer mansions having a score of bathrooms, as well as summer hotels having hundreds of them.

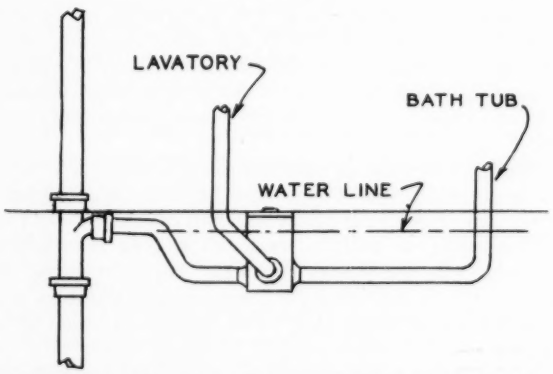


Fig. 1—This indicates the amount of space available for water to collect in some traps. All of the water must be removed to protect the piping from freezing

We talked with one plumber located in one of the fashionable summer resorts on Cape Cod, who uses over 600 gallons of kerosene each fall in the protection of traps in vacant summer homes, hotels, etc., against freezing.

The big point in this work is not to protect from freezing traps and pipes that are filled with water, but to see to it that absolutely no water is left in them that can freeze.

Undrained Traps

Every plumber is familiar with the process of draining the supply system of a house, so we are not so much interested in that detail in this particular article. We do

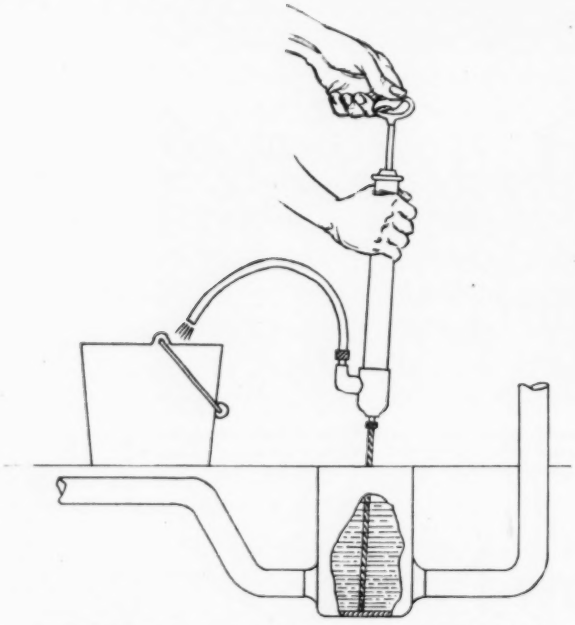


Fig. 2—One of the most rapid and convenient methods for removing water from traps

want to touch, however, upon the presence of possible traps in the supply system, which will not drain. When these are discovered, they should be removed, in order to overcome the difficulty permanently. If too difficult to remove them, then a drain cock or other means of drawing off the trap should be installed at the low point.

To ascertain whether a branch is clear of water, blow through it. Sometimes to ensure against freezing when the pipe is known to be trapped, alcohol can be run into the pipe.

A difficult and important feature of this work is to get all of the water out of each trap and especially out of the water closet bowl. If it is a siphon-jet water closet, the water must not only be drawn out of the trap, but every bit of water must be drawn out of the jet. A closet bowl can easily be wrecked by the freezing of the water

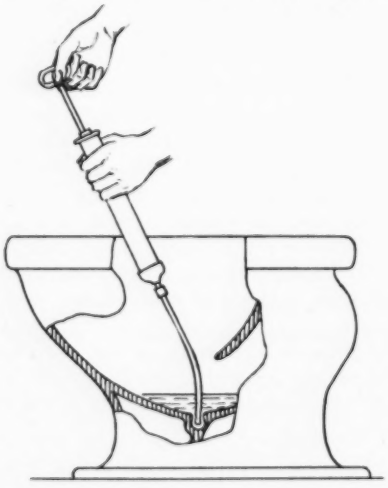


Fig. 3—In siphon jet water closets, some designs allow as much as a pint of water to collect in the jet

in the jet. It hardly seems possible, but there is nearly a pint of water in this jet in some makes of bowls.

Removal of Water from Traps

Now let us see what may be said concerning the removal of water from traps. Plumbers in the past have done this in various ways. We have heard of the water being removed by using a rubber bulb with a small rubber hose attached. The bulb sucks in only a small amount of water at a time, so that this is often a somewhat tedious task, although not so tedious as the use of a sponge, which is resorted to in some instances. The latter is a very dirty process, and we would not expect to see it used if avoidable.

That removal of water from the trap under some conditions is quite a task, may be seen from Fig. 1. Here

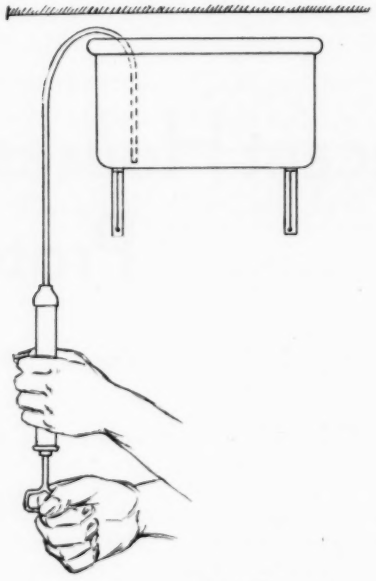


Fig. 4—The elevated flush tank presents difficulties when the ceiling height is under standard

a drum trap is used, with both bath tub and lavatory leading into it. This practice will be found considerably in use, especially in summer places which are not so likely to be under strict plumbing regulations as most cities. When the outlet from the trap is taken off in such a manner as shown in this illustration, waste will stand in the outlet, and with this water, together with that in the trap, and in the two inlet pipes, it will be clear that considerably more water is to be removed than can be properly done with a common rubber bulb and tube.

We have often seen home-made apparatus for emptying traps, which generally consists of a bicycle pump with some sort of reducing fitting soldered onto the lower end of the barrel, to which a small rubber tube is attached. By means of this pump, the water in the trap can be sucked into the barrel of the pump through the tube, and then forced out into a pail. This method has been quite satisfactory.

In one case a plumber showed us with considerable pride, a pump made by the use of a piece of brass tubing with a long round wooden plunger working inside the

tubing. Just where this crude method could outclass the bicycle pump method, we were unable to see.

There are pumps now on the market, made especially for the purpose of lifting water out of traps. This pump is made with a small flexible metal hose connecting into a reducing fitting. The plunger is of the type that expands against the inside of the barrel. The work that these little pumps will do is quite remarkable and their expense very small indeed.

Another pump not only draws the water out of the trap, but through a second piece of hose, continuously delivers it into a pail or other receptacle. It does the work rapidly. Another good feature about the double-acting pump is the fact that it overcomes the spilling of dirty water on floors, almost impossible to overcome in the use of the common pump. With these pumps available, it will hardly pay to put the labor into making over a bicycle pump.

One of the particularly valuable features of these pumps is the fact that the flexible metal hose is small enough to enter the opening of the jet in a water closet bowl, as shown in Fig. 3. In a few seconds the water in the jet can be drawn off to the last drop.

With the small flexible hose, much labor may be saved, for it is small enough to go through quarter-inch openings.

Anti-Freeze Solutions

Having withdrawn the water from the trap or from the closet bowl, the next question is—what shall the trap be filled with to seal it against communication with the sewer. The substance that is to be poured into the trap must be proof against evaporation and freezing.

Sometimes a strong brine of salt and water is used. This would not be wrong to use in lead traps, but entirely wrong for closet bowls or other earthenware traps, for the salt will strike through the ware and ruin it. Moreover, this filler would be subject to siphonage. We presume that kerosene or other cheap oil such as paraffin oil, is more often used than other substances.

We think a mistake is made in using kerosene, for although it does not evaporate and does not freeze, it will penetrate the smallest crevice, and because of this fact, the leakage of kerosene has often ruined walls and ceilings. The heavier oils would not be so subject to this difficulty.

However, we find the plumbing trade on Cape Cod and on Cape Ann is using an entirely different substance for filling traps—nothing more nor less than molasses. Hundreds of gallons are used each fall and it is said that it answers every purpose.

It is claimed that molasses is so thick that it will not leak through, and it thus overcomes the objection that kerosene has. Not too thick a molasses should be used, as this will considerably increase the labor of filling the traps, as it will run so slowly.

Asked if the molasses would not leave a "messy" condition, it was claimed not—that when water was turned on it would all wash out.

We talked with one plumber who claimed that with the molasses he did not feel that he had to be particular about getting all of the water out, as any water that was left would simply thin the molasses and do no harm. We believe this is a wrong idea, and that even in the use of this substance, all water should be removed.

Removing Water from Flush Tanks

Another problem that comes up in connection with this general subject is the removal of water from high flush tanks, and in many of the older summer cottages many of these high tanks are still to be found.

Sometimes where the ceiling height is short, these tanks in order to gain the necessary elevation, have to set so close to the ceiling that it is almost impossible to get into the tank. This makes it practically impossible to completely drain the tank, as all the water cannot drain off through the flush pipe.

With each changing season, new business building possibilities are presented to the contractor who is alert and ready to grasp them

For getting all the water out, we find the pumps we have mentioned, being used to siphon the water out, as shown in Fig. 4. No doubt the work can probably be done somewhat more easily and effectually if a stiff piece of tubing is used. The flexible tubing that ordinarily is furnished with the commercial pumps is not long enough for this purpose, but without doubt the manufacturer could supply tubing of sufficient length.

We have heard plumbers tell of using a siphon tube to get the water out of the bottom of an elevated tank, and of starting the siphon by sucking on the end of the tube, and occasionally getting a mouthful of very dirty water for their trouble.

◆

Underground Steam Distribution

There are two methods of underground steam distribution, namely, the trunk main and the feeder method. The trunk main method consists of a main from the heating plant to the district served, with decreasing pipe sizes as the quantity of steam fed decreases. Lateral pipes are connected to the trunk main at street intersections. The feeder system consists of feeders which extend from the heating plant to strategical points on the heating system. Pressures are generally controlled at these points by means of long distance gages. Increased demands on an overloaded trunk main system may be supplied by the installation of feeder pipes.

Editorials

Technical Knowledge an Advantage

IF, in these editorials, we seem to stress the problems of business management as distinguished from technical problems, it is only because they are most pressing at this time. Technically, the retail branch of the industry knows what it is about.

But in the other pages of DOMESTIC ENGINEERING there is "feast of reason and flow of soul" for the man whose hobby is the technical side of plumbing and heating. Far from minimizing the mechanical, we would like to show its double advantage to the plumbing and heating contractor.

He must know his products and their uses, and the problems involved in installing them. This specialized knowledge can be made the foundation for strong merchandising and selling. What the contractor knows about pipe and fittings and fixtures, and the specialties which he sells, is far more than the so-called "specialty salesman" can know. The latter is given an intensive "course" when he starts to sell a given product. But the contractor, wrench in hand as apprentice and journeyman, has worked with the fundamental selling points which, so often, are locked in walls and under floors. Adding to his store of knowledge, keeping it up-to-date, is the constant purpose back of the technical material which appears in every issue of this business paper.

The Association's Job

THE association's job is, primarily, one of leadership. The earliest associations of men were for the purpose of presenting petitions to a king who had an idea that he had the last word in everything. The modern associations of men are for the purpose of presenting petitions to the public which has, without question, the last word in everything.

That leadership involves the education of the public concerning the services offered by the members of the association. It involves the education of legislators (representing the public) in the necessity for proper sanitary regulations. It involves the education of members and non-members in modern business methods. It involves the solution of such problems as public utility and mail order house competition, either by co-operation, or by meeting such competition with more efficient merchandising methods. It involves the task of seeing that such public servants as are in contact with the membership (such as inspectors) are up to their jobs. And, since all this takes money, it involves the task of collecting the necessary funds.

It may be answered that this is a stiff program. It is. But it's a difficult world we live in—a world not willing to change its ways unless some pressure is brought to bear.

We do not mean to be unreasonable, of course. A young association can not carry on all of these activities. But if there is an association which is not doing something—and doing it effectively—along at least one of these lines, we find it difficult to see the value of that association to its membership.

No one will question the value of associations. But associations should be known by their deeds. They should, literally, do, or die.

The Industry's Responsibility

AN association official complains that his members have shown a certain lack of ability in driving a sale through to the point of getting the signature on the dotted line. This may be a bit disturbing to a man who has thrown himself earnestly into a program which has produced prospects who have not been "closed." But it is not a matter for deep concern at this time, when it is remembered that the plumbing and heating industry is passing through what is probably its first real "baptism of fire" at the door of the prospect's home.

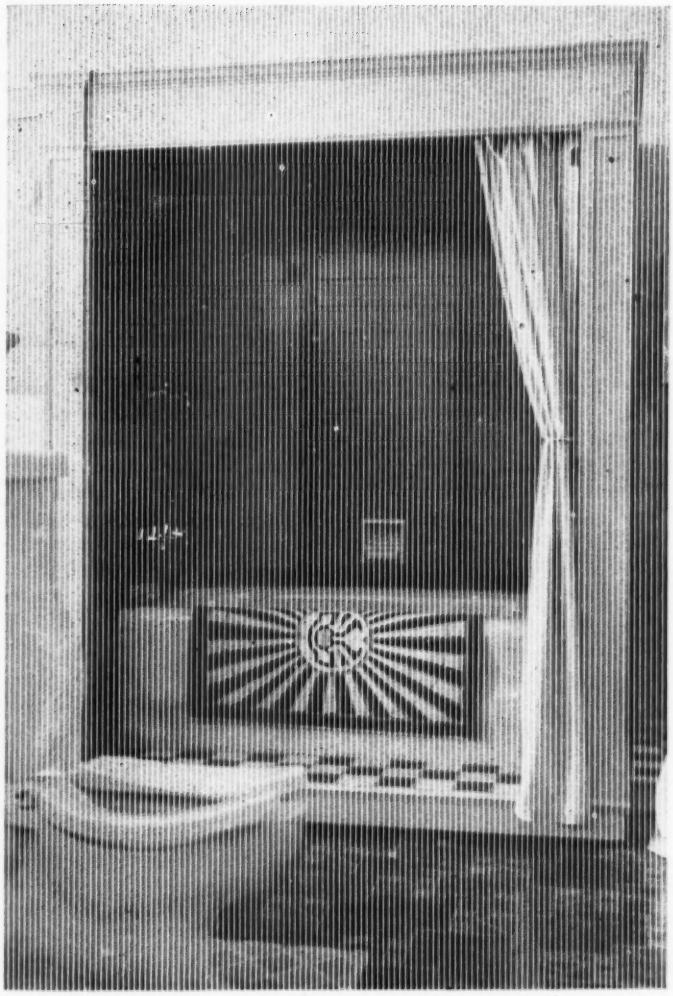
The failure to develop more prospects into sales is merely indicative of a lack of training. We have maintained that the plumbing and heating contractor has gone a long way on the road of merchandising. He is now in need of expert guidance in the delicate matter of personal selling.

That was one reason why "The Master Salesman" and his studies in selling were made a part of the "Plumbing and Heating Merchandising" section in DOMESTIC ENGINEERING in each issue. Men who are trying personal selling for the first time are surprised a little to discover that the prospect balks. We all do, when we are prospects. However much we may need and want the article which the salesman is trying to sell us, we hold back, we wonder whether we can't get it at a better price, or on better terms. In a word, we make the salesman exert his salesmanship.

Plumbing and heating contractors are at the point now where they can use the help of experienced salesmen. They should turn to the men who are calling on them for this help—as those men should offer it. A little co-operation now between the salesmen of the industry and the contractors who have difficult prospects to handle will result in developing more of those prospects into users of the industry's products.

This job of sales management is, we feel, one in which the whole industry should co-operate. More and more selling is becoming necessary as the luxury industries force the pace. We in the plumbing and heating field must keep step. We must carry the developments in merchandising to their final application in personal selling.

PLUMBING & HEATING MERCHANDISING



Like the other exhibits in the Durant showroom, the heavy bath unit is mounted on castors and may be moved about with ease. Within an hour the entire fixture display may be rearranged. The picture on the front cover was also taken in the Durant store

The Store

Does it pay dividends?

TOM WHITE asked a number of contractors if their stores were worth while. The "Yes" was unanimous. Read what they have to say in answer to eleven other questions

CONSIDERING all the time, thought, labor and expense involved in arranging and maintaining a showroom, just what does the merchant plumber think of it? Is it worth while? Does it sell itself both to the merchant and the public? How is the proprietor's volume affected? and his profits? If he had it to do over again, would he still provide for a showroom? What does he have to say on the subject to the man just entering the retail branch of the plumbing and heating industry?

All these are leading questions, questions that are puzzling many earnest master plumbers from one end of the country to the other—those already established in business as well as those contemplating such a move.

In the East Bay district of northern California, which includes among others the cities of Oakland and Berkeley, the percentage of master plumbers who have abandoned the idea of business obscurity in favor of aggressive merchandising during the past five years, has equaled if not exceeded that of any group in the country. Why is the showroom idea

The showroom of Max Finzel of East Oakland is situated on the dividing line between the well-to-do and wage-earning sections of the city. Mr. Finzel maintains that every home should conform to a definite high standard with regard to its sanitary installations, which has resulted in many new installations in both classes of homes

taking such a strong hold? The masters, themselves, can best answer this question.

A query containing eleven questions intimately concerned with the subject of showrooms was put before a representative group of East Bay masters who constituted a typical cross-section of retailers to be found in any metropolitan area, volume, location, class of trade and similar factors being considered. Their replies to these questions are both frank and illuminating; they dispel the fog of uncertainty that has long hovered over the subject of showrooms.

Why Open a Showroom?

The first question was "What was the deciding factor in your decision to open a showroom?" Replies to this query fell, roughly, into four classifications.

Nearly 50 per cent of the answers reflected the opinion that the master plumber owes it to himself and the industry to maintain a showroom, in fact that it should be considered an integral part of his business. To quote one man, "It is just a matter of getting into business, heart and soul. It's plain that a retail merchant in any line must show his goods."

The next largest group maintained they opened showrooms in order to secure publicity. One man contends that "My new location is a good one, and I am making the most of it by having my showroom take the place of other kinds of publicity," while another holds that "My showroom is a very definite part of my advertising program—like the signs on my trucks, hand bills, or anything else of a similar nature. All these features tie in together; one would be worthless without the others."

The third group felt that showrooms reflected credit upon the industry by marking its members as substantial men — "established merchants in the district; men with a definite amount of capital invested, therefore interested in the community's welfare." A similar attitude was developed in the answers to some of the other questions, as well.

"Showrooms make for better, more clean-cut merchandising methods" is the keynote sounded in the fourth group of answers to question No. 1. Educational value is no small part of the benefits derived from showrooms, according to one forward-looking merchant plumber whose opinion that "Our goods should be properly shown" is backed up by the firm belief that merchandise adequately displayed is as good as sold.

So much, then, for the motives behind the decisions of these men to open showrooms, at least one of which has been in existence since the days when toilets were shown with overhead tanks.

Interesting sidelights on the subject of showrooms in general were developed through voluntary remarks made during the course of these interviews—angles that could hardly be anticipated in any prearranged set of questions. By reason of their spontaneity they were, perhaps, all the more valuable.

Advice is cheap—everyone knows that; but experience is mighty expensive. These northern California masters were not tendering advice; they were asked to sum up in a few words their experience with showrooms. This they have done in such a way as to cover very nearly the entire subject and answer the majority of questions which occur to the man about to enter the field of active merchandising, as well as to help solve the difficulties of those who might have made a bad start.

Experience Speaks

In almost half the questionnaires the feeling of enthusiasm reflected in the general remarks was leavened with a spirit of caution—the necessity of going slowly at the outset. "Provided a man is properly located," said one master plumber, "it is essential that he develop *only as his means allow;* then, when this is accomplished, he is justified in expanding accordingly. A man should not go in 'over his head' on showrooms, particularly at the beginning. . . . A man shouldn't be overanxious to see the glitter of the gold leaf letters on the door."

The proprietor of one of Oakland's outstanding establishments has this to say: "If a man has a minimum volume—say $10,000—he would do well to spend $500 for a showroom. Other things being equal, he should double his volume in three years; but *he must know his merchandise and his prices.*"

From one who has long maintained a showroom and given the subject much thought, there comes this contribution: "Showrooms are

indispensable; but at the outset a man should decide carefully, make reasonable investigation and learn his stock and prices—all this before he makes a definite move."

To the man just entering business: "It is highly advisable for him to go into the show room proposition in a moderate way and governed by the means at his disposal, for regardless of its size, a showroom helps to build business. Equipped with substantial fixtures, and having a neat, attractive arrangement, it immediately fixes a man in the mind of the public as a substantial citizen and a permanent one."

Location Needs Study

The success or failure of a showroom, it seems, depends primarily on the location element. Making a strong bid for their share of the consumer's dollar, East Bay plumbing and heating establishments are making equally attractive showings as compared with other retailers in the principal shopping districts of Oakland and Berkeley. "Location is 75 per cent of it when it comes to selling." . . . "Consider the rent in terms of merchandising possibilities." . . . "Select a location not too near a supply house that has a showroom of its own." . . . Reflecting the trend away from contracting and toward merchandising, one man has this to say: "Location should be chosen more with regard to its merchandising possibilities than with the idea of securing contract work."

1. **What was the deciding factor in your decision to open a showroom?**

▲ ▲ ▲

2. **What percentage has your business increased since opening showroom?**

▲ ▲ ▲

3. **What percentage of total business is due to sales actually made by reason of having a showroom?**

▲ ▲ ▲

4. **What type of articles are sold mostly?—that is, is the total volume of store sales made up mostly of small items, or fixtures?**

▲ ▲ ▲

5. **Does your showroom create inquiry for plumbing and heating goods other than those displayed?**

▲ ▲ ▲

6. **Does your showroom draw more women than men? Why?**

▲ ▲ ▲

7. **Do you keep your show window lighted at night?**

▲ ▲ ▲

8. **How does your showroom affect the volume of your jobbing business?**

▲ ▲ ▲

9. **Was your business helped or harmed when your competitors also opened showroom?**

▲ ▲ ▲

10. **How much do you estimate it costs to maintain your showroom annually?**

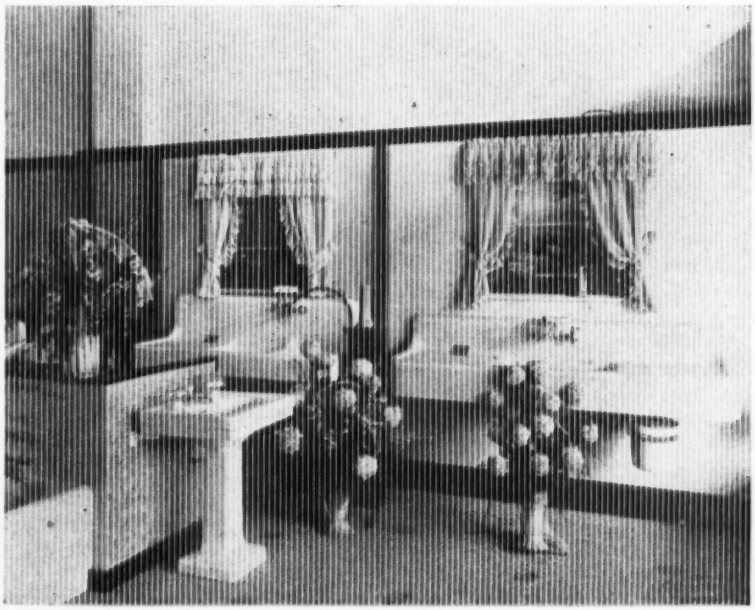
▲ ▲ ▲

11. **If you had it to do over again, would you still provide for a showroom?**

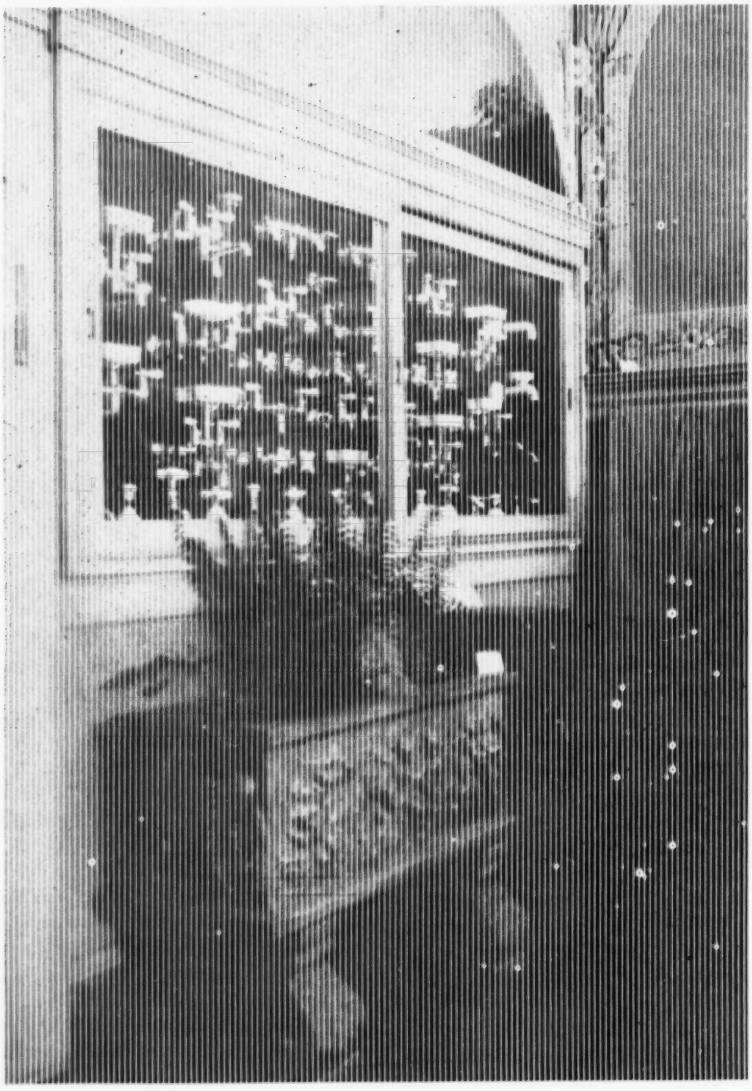
Just as a man is judged by the company he keeps, so does the discriminating public of today size up, largely by his showroom, the caliber of a man's work, his personal responsibility and other qualifications entering into the conduct of a business. Just listen to what this well established Oakland master plumber had to say on the subject of showrooms, in general: "I think a showroom is of inestimable value in setting up one's reputation. It creates confidence in you when people know you are permanently located. If you have a presentable store *it helps to keep you up on your toes.* One is often judged by his showroom; and the quality of your work usually measures up or down to it, as the case may be."

He's a fortunate man, indeed, who derives as much real pleasure out of his work as does this merchant whose place of business enjoys a choice location in Berkeley. "I get more satisfaction in every way out of my showroom than anything else since I've been in business. Before instituting my showroom I would have tried ("tried," mind you!) to sell a lavatory from my price-book. Now I sell a fifty-dollar article from actual demonstration."

This same man continues, touching on two or three more points. "Almost a year ago I arbitrarily added $500 annually as my own salary to my overhead. I find now I can get by far more advantageously with this additional overhead than if this sum had been realized as a result of work along the old, competitive lines." . . . "A fair question is: Is it worth while to worry along on contract work—close figuring and all that — when merchandising offers



A distinct note of cheerfulness is apparent in the showrooms of J. H. Jevons of Berkeley. In the kitchen ware section there is an appropriately draped window over each sink. There is a shallow recess back of each window, at the top of which and concealed from view is an electric globe colored to match the tint of the ware being displayed



On one of the panels at the rear of the showroom of W. H. Picard, Inc., of Oakland, is a plate glass case of chromium plated fixtures which have been of invaluable aid in suggesting the proper finish for the new installation—bath or kitchen

such splendid opportunities?" . . . "The public is ignorant and will continue to remain so just as long as we are afraid to let them know what we have for sale, to explain the merits of our goods and tell them how much they cost." . . . "Our mechanics are plenty good enough. What we need is *more good salesmen.*"

Showroom Increases Business

Knowing the reasons, then, which impelled these men to open showrooms and enter the plumbing and heating field as merchandisers, and learning their reactions to modern salesmanship as evidenced by their adoption of the showroom idea, it is still more interesting to pass on to brief summaries of their replies to concrete queries embraced in the questionnaire.

What percentage has your business increased since opening your showroom? was **Question No. 2.**

While a large proportion of these masters have maintained a display room for many years—either that, or they opened one when they established business, they state their actual sales have increased by amounts varying from 20% to over 100% a year, taking the last five-year period as a comparable basis. Characterizing the frankness of these replies, one man bluntly stated his volume had materially decreased; but this was due to the fact that he had changed over from contracting to merchandising just a year previous and was obliged to work up an entirely different kind of clientele. But it's a different story now; he's "finding himself" in his new occupation—"It is much like entering a new business, altogether."

Another reply to this question, and one that is quite significant, is this: "While my volume is not so great, due to changing from new work to remodeling and jobbing, my profits have unquestionably risen."

Question No. 3: What percentage of total business is due to sales actually made by reason of having a showroom?—brought out a variety of replies. Due to the nature of this question there were only a relatively small number of definite replies made, the average of which was 20%. This is a difficult question to answer, depending as it does on what kind of records a merchant keeps and how closely he watches his showroom sales, as well as the nature and locality of his business. One man makes all his sales right on his floor, while another, who likewise has a very attractive showroom, says that "Customers don't come in to buy articles on display: that is, fixtures. While I show a fairly complete line, at the same time when I have a good prospect I take him to the manufacturer's display rooms, downtown. Accessories are another thing: I sell $200 worth monthly."

Question No. 4: Does your showroom create inquiry for goods other than those displayed?

All answers to this query were in the affirmative, some of which were supplemented by the information that valuable leads were developed. It was shown that when a customer examined and purchased a water heater, for example, this sale frequently led to the purchase of a shower head, tub supplies, and the like. Cases were also mentioned where, strangely enough, the procedure was reversed.

While it is physically impossible to show every article manufactured by even one concern, enough can be displayed to crystallize the desire to buy in the mind of the prospect.

This indicates still another angle developed by Question No. 4.

Who Visits Showrooms?

Question No. 5: Does your showroom draw more women than men?

More than half the replies to this query were in the affirmative; and the remainder, except one, showed an equal division of interest between women and men, the exception being "My trade, two to one, is made up of commuters who look at my display, go home and talk it over with the family, then return to discuss the purchase."

Several of the affirmative answers were based on either of the facts that "women are born shoppers," or "women have more time to shop." Granting both to be valid reasons, but going still further and getting right down to the question of what brings women to their showrooms, regardless of their innate desire to shop, or the fact that they have more free time during the day—granting all this, why do they step into the merchant plumber's showroom at all? What brings them there?

The fact that all goods displayed are more intimately concerned with their work and the welfare and beauty of the home.

Bearing this well established point in mind, the most progressive and most successful plumbing and heating merchants in the East Bay region are going to extreme lengths not only to place their goods on their floors for a frank examination, but are arranging their displays with just one idea in mind—to intrigue the feminine eye. In short, it isn't enough to set out a pale green, vitreous china lavatory—bare. This wouldn't do, at all. It must be supplied with every one of the customary small fixtures; and not only that, it must be set up in appropriate *and harmonious* surroundings, exactly as it would appear in a well appointed home—ready to use. Artistry and utility must be combined to exert the most potent appeal to the purchasing agent of the home.

Question No. 6: How does your showroom affect the volume of your jobbing business?

All agreed, to varying extents, that their showrooms were the means of adding materially to their jobbing business. One said "It is a big help; it acts as a stabilizer." Another, "Jobbing business has increased at the rate of one customer a week." Still another, "A real help. It makes people mindful of their need for accessories as well as jobbing work." A fourth had this to say: "It stimulates it, thereby working around to the creation of more sales."

Competing Showrooms Welcomed

Question No. 7: Was your business helped or harmed when your competitors also opened showrooms?—developed two distinct types of replies, both of which indicate a healthy outlook, an outlook far different from that which characterized the short-sighted policy of the old-time retailer. Two replies typifying those of the first group were: "I was the last in my district to open a showroom. It helped the other fellow in that it made him improve his own display," the other being: "It helped me when another showroom was opened in my locality, because the more business my competitor does, the more I do." These bring out the personal equation, the direct benefits accruing to the individual, himself, regarded from the standpoint of both the first man to establish his business in a given community and the one who came later.

The keynote of the other group of replies to Question No. 7 was concerned with the greater good, the benefit to the industry at large. This was shown by two answers, one of which was "It helped my business. The more showrooms there are, the better it will be." The other was "More showrooms help create more business by making a stronger appeal in favor of the industry."

A solitary dissenter held that his business was harmed when nearby competitors opened showrooms, "because people are bound to flock to the new places." While there are one or two obvious answers to his contention, at the same time, the position he takes is far from being altogether wrong. This man has been in business for many years; he follows new developments closely; he is a keen student of modern commercial affairs; and when he said that people flock to the new places, he was right, to a great extent. This man holds his customers as well as any of his competitors; but curiosity is one of the most powerful of the human instincts.

Investment Required

Question No. 8: What is the ratio of capital investment in your

In the establishment of H. G. Newman & Company of Oakland, a large part of the space is devoted to showing accessories. These articles move well and at a satisfactory margin

showroom to the total volume of business?

The replies to this question ranged from 1 per cent to 12½ per cent, as extremes, the average straight through figuring 6½ per cent. One man estimated from one to seven per cent, depending on the increase or decrease of business. Naturally, the cost was higher for those who maintained the more elaborate establishments, and who changed their display more frequently. Expressed in dollars and cents, the cost to keep up one of Oakland's finest showrooms was $6,000 a year; but the return was more than commensurate. A more modest showroom, in the opinion of the proprietor, costs "practically nothing, due to the discount given by the manufacturer for goods put on display. Also, the discount covers interest on the capital invested in display goods."

Question No. 10: Do you keep your show window lighted during the evening?—developed a heavy majority of affirmative answers, most of them showing that windows are illuminated until 10:30. This is important for two reasons: it shows that the modern merchant plumber is alive to the fact that his window is more effective at night and is frequently seen by more people who have a greater amount of time to examine it, and that he realizes that his goods—made up of gleaming chromium-plated accessories and fixtures in highly attractive pastel shades—lend themselves to making a more striking display from almost any distance

L. J. Kruse, 6247 College avenue, Oakland.

W. H. Picard, 5656 College avenue, Oakland.

D. W. Durant, 492 Lake Park avenue, Oakland.

Max Finzel, 2025 Hopkins street, Oakland.

H. A. Hood, 3823 East 14th street, Oakland.

J. W. Rankin, 1972 San Pablo avenue, Oakland.

H. G. Newman, 2004 Telegraph avenue, Oakland.

F. J. Hoerst, 5517 Foothill boulevard, Oakland.

N. J. Previati, 9003 East 14th street, Oakland.

David Minoggio, 2316 Telegraph avenue, Oakland.

George Stoddard, 2112 Berkeley Way, Berkeley.

J. H. Jevons, 2330 Shattuck avenue, Berkeley.

than goods produced by any other industry.

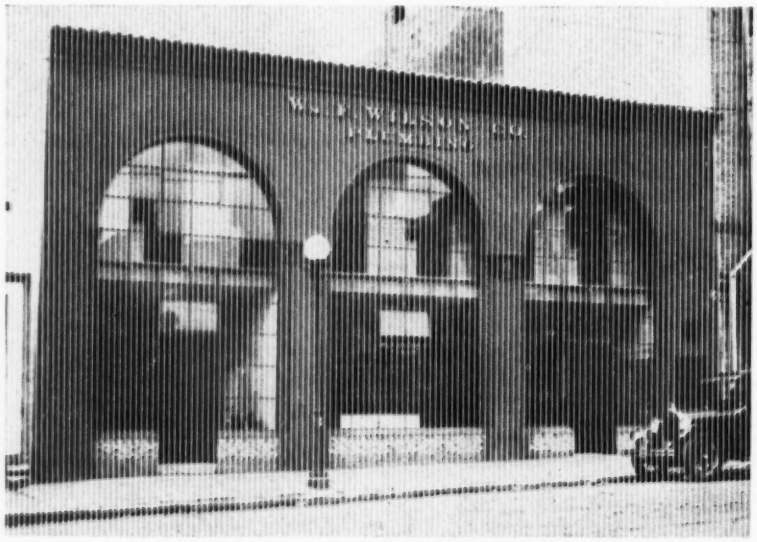
No Regrets

The answers to **Question No. 11**—If you had to do it over again, would you still provide for a showroom?—were, whole-heartedly and without reservation—*Yes*. . . . One man continued with "I should have started mine twenty years ago." Another said "If I had the location and space I would put in a bigger one." And still another, a man of wide experience, and one who senses the possibilities lying in this direction, had this to say: "Of course, I'd provide for a showroom, and I would have everything that pertains to the industry, on display—every article."

In conclusion, reviewing the answers to these eleven questions, it is easy to see what the average merchant plumber thinks of the showroom idea, in what light he regards his showroom, how much it costs, to what extent it is a paying investment, and its educational value—both to himself as a merchandiser and the public as the buyer.

In view of these answers and the further fact that they were put to men each of whom regarded the showroom from the angle of his own experience, which is typical of any modern community, there should be little or no hesitation about answering the question which appears at the head of this article—Is the showroom worth while? . . . Is it? It would seem to be, considering that each of the men interviewed would not think of re-entering business without one.

Among those who materially assisted in the preparation of this article, through their willingness to answer the questionnaire, were those whose names are listed on this page.



Wm. F. Wilson Company's new showroom in San Francisco

A contractor writes the Master Salesman to ask

What's Wrong with My Approach?

A CONTRACTOR writes the following letter: "I started a mail and personal call campaign recently, with an eye to new customers. I planned to specialize on remodeling old installations. After getting together a list of fifty owners of old property, I sent them a letter suggesting making their homes more attractive and modern by permitting me to show them what could be done in the way of transforming an out-of-date bathroom or kitchen into one of the most modern appointments. I also explained briefly, the deferred payment plan by which the installation could be paid in monthly amounts.

"Out of eleven calls, three told me they were not interested and as good as shut the door in my face, six acknowledged receiving my letter and would let me know when they needed a plumber, or something to that effect. From two I got orders for small repairs.

"I believe I am on the right track, but it seems to me that I should get more results out of so many calls. Even the two orders I landed were very small repairs—I couldn't sell any real job of replacing fixtures to either of them. The principal barrier seemed to develop out of their discovery that I was a plumber. Because they had no drain stoppage or broken pipes or fixtures, they seemed to refuse to think of any other use for my services.

Wants to Develop Remodeling

"This kind of work is interesting to me and I know it is profitable. But I can't afford to spend all my time calling on new prospects unless I get more out of them. One or two jobs amounting to not over twenty-five dollars in total business isn't moving very fast. I'd like to know how to increase the results from those calls against the time I must spend making them. Your article on approach seemed to me just right, and I tried to introduce myself by presenting my card and reminding them of the letter they had received. Then I explained the quality of fixtures and lines I handle; the purpose of my call was to introduce myself and probably there were some improvements they were considering. If so, I'd be glad to give them some suggestions and approximate cost with the thought that my recommendations would improve the property value as well as add to their convenience. In one instance I got so far as to explain some of the changes in sanitary engineering since the time their home was built. Is there anything wrong with that approach? All I got from the three I refer to was a very apparent attitude of wanting to close the door. I didn't even get inside. I don't seem to have any trouble closing an order for a job if I get far enough along to interest the customer or he happens to be already interested. But I can figure now if I have to make fifty calls to close six or seven jobs, I'd have to spend all my time following up new customers. In this instance my time working with the tools would produce more for me than the two jobs I got.

"I've cut out any competitive work unless I can figure a safe profit above my overhead. You've referred to overhead as important. In that I agree again, and in my case, my overhead includes every expense necessary to operate my business, even to including insurance and stationery. My repair business goes along on a fairly even basis; usually enough to keep three men busy, besides considerable time which I put in on jobs myself. After figuring my profits in the individual home contract, or a replacement, even small repairs, I have satisfied myself that I can make more money out of that sort of business if I can get enough of it. I have worked out a plan for my labor charges on small jobs that makes me a profit on labor. Yet, I am able to charge only actual time spent in work on the job, plus the average or share of traveling and shop time after each man has finished his number of jobs for a day's work. Sometimes two of the three men will be on one job all day—in that case the traveling time is light and the charges on small jobs proportionately less. If the time takes up half a day on a job and on another fifteen minutes, the traveling time balances a low labor cost on both jobs. I call this traveling time 'service.' So you can see that I have my plan well in hand for taking care of and satisfying my customers—but this missionary work is where I get stumped."

Analysis by the Master Salesman

You did not make a mistake when you convinced yourself of the value of that type of business we term remodeling. It is true, it takes several, often many replacement jobs to equal one moderate size new contract, but that is one of the reasons why the field is rich in opportunity. Most everyone has an ambition to do something on a big scale, and the average master plumber is no exception to the rule. One real big contract is the ambition of everyone who starts in the business. To be able to point to some big building and say, "I installed the plumbing in that job," is but human pride in the accomplishment of something worth while.

The mail campaign followed up with personal calls is sound, because it is being tried every day and not found lacking in its development of business.

The first step—the letter—is a very important factor. Because it is your emissary, representing you, it must convey all the dignity and command the respect of its reader, just as you would and did later, in person. The very first sentence should be so worded that it holds a permanent interest. In the first five words of that sentence, must lie the key to interest. For instance, begin thus—"Making the home more beautiful," and then continue in explanation of the comfort, saving of labor and by no means least, winning the admiration of guests and friends. Just a few lines, not over twenty-five, to put the interest there and make it last until you call.

The Sales Portfolio

The second step is proper preparation of data and literature that will visualize in pictures what the letter intimates is to follow. This preparation should be something widely diversified to fit several ideas in kitchen equipment, laundry, bathroom and shower appointments. Combination sinks and combination sinks and dishwashers in several styles; bathrooms with complete appointments, even to the shower stall. It is not

infrequent that the letter will lead into the home where the bathroom is large enough to accommodate a 30-in. or 36-in. outfit. Bathroom accessories should not be overlooked. A section should be given over to washing machines, electric ironers and iceless refrigeration.

To prepare this in attractive form, the various lines of plumbing merchandise should be gathered together from colored and attractive display folders, except that they should be gathered into book form and held in a fitting size of loose leaf binder. We know of one master plumber who has arranged such a portfolio and on the last page he has an illustration of one of his very completely equipped trucks that is a veritable shop on wheels. When he is through with the principal subject of his call and comes to the last page, he explains how that van saves his customer money by eliminating trips back to the shop for things.

With an attractive portfolio arrangement of these displays you have something to play with. It suggests sitting down and looking at the pictures. Then it becomes a story book in the hands of the salesman who begins telling the story of a bathroom made beautiful, a kitchen free of household drudgery. Or, a pride in the possession of a bathroom "fit for a king."

In approaching a prospect—do that job of approach thoroughly, with a proper poise and pleasant smile of greeting. Move slowly into the subject of the letter. The address may be opened with the ordinary greeting, and even presenting the card. But a very short story must be told before touching on the letter and its subject. We suggest, for a constructive basis: "Good afternoon, Mrs. X. I represent the X.L. Plumbing and Heating Company. May I explain a system we are operating that is gaining the approval of every house owner? I know the average property owner fears a master plumber's bill. It is a fact that not often can you get a plumber to give you free service, yet that is what I called to explain. You have your radio and auto services who make no charge for advice, who will check your radio or car, give you a report on its condition and make no charge. Your plumbing and heating equipment are no less important to you than your auto. By having the car checked ever so often you avoid the danger of worn bearings, scored cylinders, either of which costs a lot of money to repair after the damage has been done. The same principle applies to your plumbing and heating. A worn washer on the sink faucet might shut the water off, but the strain on the faucet—caused by forcing a seat in the worn washer, wears the core of the faucet. You don't notice that wear, but soon the seat is destroyed and then a new pair of faucets is necessary, because you cannot replace the worn faucet with one that does not match the good one. If you could have an inspection of your plumbing—without cost to you—you would be glad to have the opportunity of being sure everything is in good order, wouldn't you?"

Something in this form is what we mean by telling a story. Making a word picture of plumbing conditions that will be comparable with something else that already exists and of which the owner makes actual use, you give her or him something for comparison. Sometimes, a past experience of some other customer who, having discovered his coal bills were excessive beyond those of the average, discovered through the advice of his heating engineer, that he hadn't been firing or regulating drafts properly; or, a drain has gone bad, working poorly and the fault traced by the master plumber to its cause. This service, given free, was appreciated. It might happen that Mrs. X has had some trouble of that sort and these suggestions of experiences of others, lead into telling of the trouble and getting into the house to make the inspection.

You see, it takes time to work up the picture and bring it to the climax. It can't be done trying to tell the whole story in a few words or tell it at all, as successfully standing at the door as inside, seated and discussing the subject in a sociable way.

Once inside and accorded the privilege of making an inspection, observation of other conditions must be actively exercised. The style of faucets on the fixtures, the fixtures themselves, bathroom trimmings, etc., are subjects to be stored in memory's records. Maybe nothing is wrong beyond advice how to remedy. In that case, after completing the inspection, it can be suggested that a written report will be made up. Then the fixtures, faucets and bathroom trimmings can be discussed. How well they have stood the years of service. That will open the way to show pictures displaying how plumbing has advanced. Applied to heating, there is concealed radiation, or radiator covers, vacuum air valve system to save fuel; humidifiers to regulate the proper mixture of moisture in the home during winter months. Many colds are contracted from dry throats and dry atmosphere.

In most cases, it probably would not be good judgment to bring up the new fixture or new bibb, or other merchandise until the written report after the inspection is brought to the prospect. The report opens the way for the second call.

A New Outlook

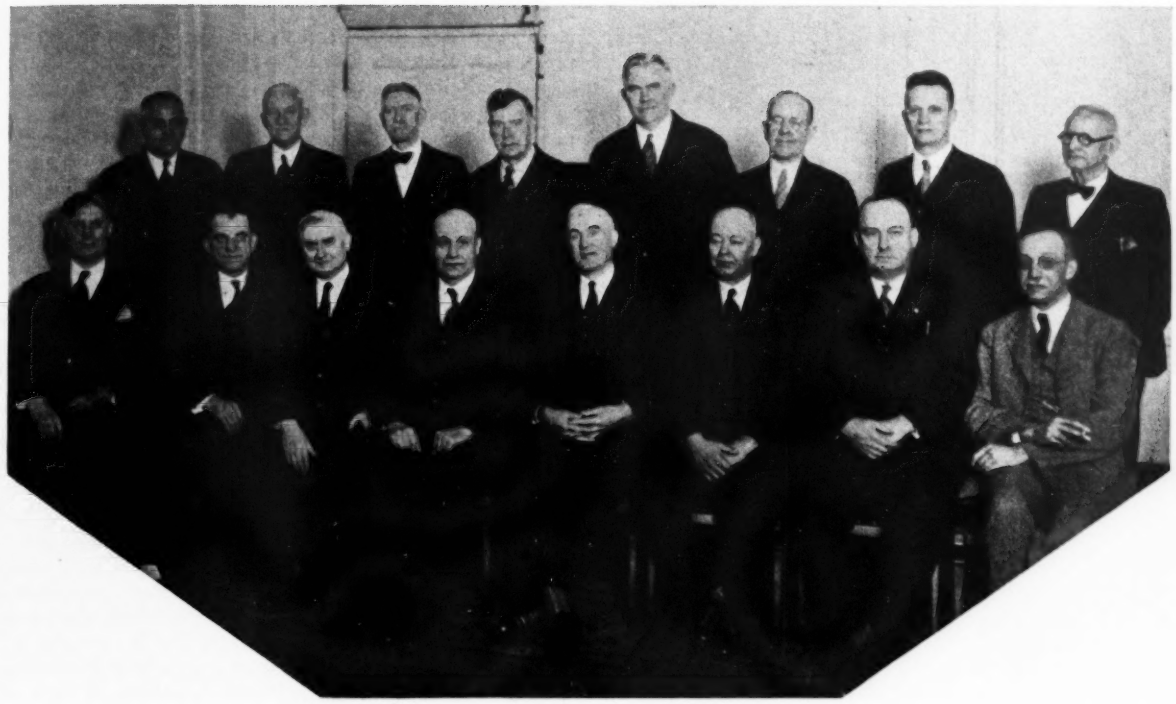
It was not that you were "just a plumber" that those prospects wanted to end the interview. It was the manner of approach more likely. Isn't it possible that you, being conscious of your position in having started a front door interview, were actually anticipating that they might close the door on you and, in consequence, you tried to crowd your entire story into a few words? Next time, don't anticipate anything but a receptive listener, stick to your resolution to introduce your subject, in short chapters, working up the interest as we have outlined.

If you make ten calls in one day, land three orders worth a total of thirty dollars, you make more money paying someone else to do the manual labor for you, while you are hunting three more jobs tomorrow. Then out of the ten prospects, the other seven have become established contacts. some of them opened the door of opportunity in the form of a half decision to consider some suggested plan. These are assets. Not only orders, but interested prospects for following up are assets too. Twelve to fifteen orders out of fifty first calls would be a very high percentage of results.

One of the surest methods of building your volume of this business is to follow the principles laid down by most sales organizations: set a quota for yourself. Fix a definite amount, in dollars worth of business you must bring in every week. Make yourself manager of yourself as a

(Continued on Page 150)

Front row, left to right: J. F. Donovan, Buffalo; Jere Sheehan, St. Louis; George W. Frank, Buffalo; George H. Drake, Buffalo; P. W. Donoghue, Boston; H. O. Green, Tulsa; H. E. Longley, Wilmington, N. C.; Lewis R. Friend, Milwaukee. Back row, left to right: Fred A. Beier, St. Paul; George H. Werner, Orange, N. J.; Chas. M. Swinnerton, Los Angeles; Roy E. Thompson, Tacoma, Washington; Robert J. Barrett, Washington, D. C.; Maney J. Feeney, Philadelphia; E. B. Kleine, Cincinnati; Richard G. Thomas, San Antonio



WHAT YOU FIND WHEN OFFICERS OF MASTER PLUMBERS MEET

THE National Association of Master Plumbers is now making plans for its 49th annual convention. Any organization approaching its 50th birthday with a membership of more than 10,000 holds a powerful position in the industry of which it is a part. In an industry such as plumbing and heating, where the retailer is required to be a contractor and engineer, an association of those who meet the customers has both great power and large obligations.

DIRECTORS of this association have just met at Milwaukee, where the next year's convention will be held in June. The association is organized in such a way that this directors' meeting is both interesting and important.

THE delegates at the national convention, selected in turn by the votes of the members of the different local and state associations throughout the country, elect only the president, vice president and treasurer. The president is given the power to select his secretary and also the eleven members of his board of directors. The confidence of the delegates in their president is annually shown by a vote approving in advance the president's selections and in turn the actions of his directors during the time intervening before the next convention.

A NEW president, by precedent always elevated from the vice presidency, takes office with almost complete freedom in running the association's affairs. At the same time this means that he has months of hard work ahead in selecting an organization to carry through those policies which the delegates may have approved and which in his judgment are requisite for the advancement of the association. One result of this type of organization is that the interesting contest at annual election time is for the vice president, the balloting for president being usually a formality.

THIS method of procedure is not as loose as one might infer. In the past 48 years, the selections for presidency have included many strong men who were successful in bringing the association to its present position of strength.

Service as vice president has brought them close to the problems of the association and the industry and at the same time into intimate relationship with past presidents, other directors, committee chairmen and members. Consequently, their selections of directors, when this power in turn falls into their hands, is quite likely to call upon a majority of experienced men. This provides a continuity of purpose and policy.

GEORGE H. DRAKE of Buffalo is now president. Although elected president only in June, he has served as president for nine months as a result of the death of his predecessor, John A. Quinn, last winter. Before reaching that office, Mr. Drake had served for several years as chairman of the standardization committee, a service which threw him into contact with the officers and directors of earlier administrations. Also he had carried to successful completion the heavy responsibility of general chairman of the 1928 convention at Buffalo.

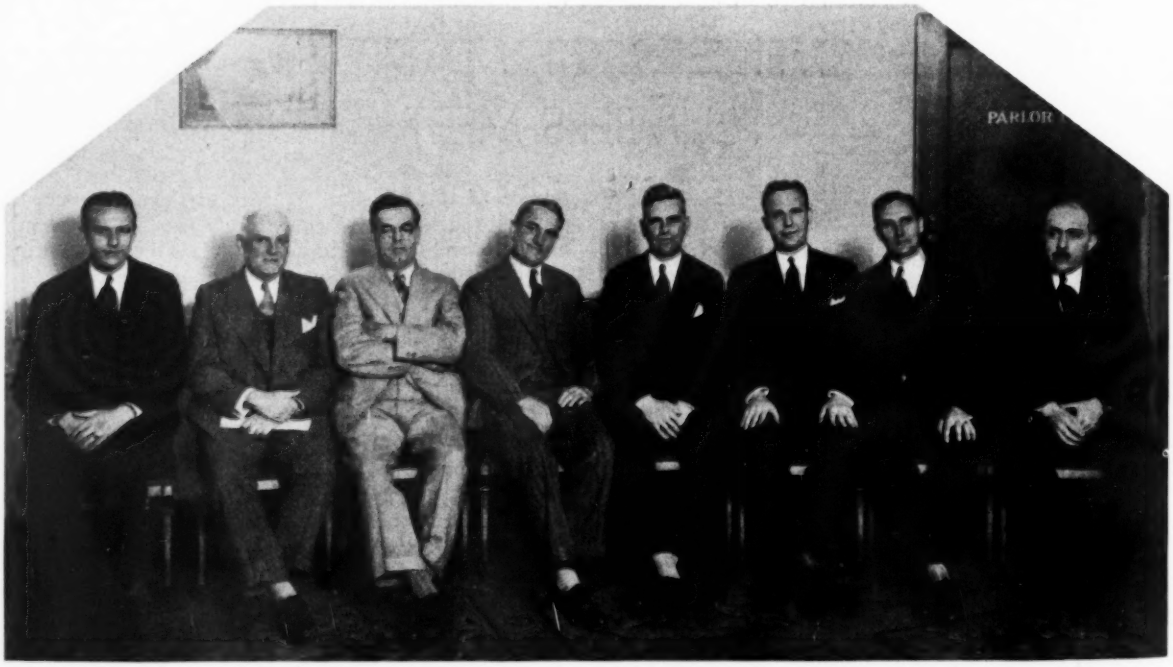
THE vice president, P. W. Donoghue, Boston, has served the same apprenticeship which many national officers do, that is, as an officer of local and state associations. He in turn led a numerous group in uniting to make this year's convention at Boston a success. He is also president of the Massachusetts state association.

H. O. GREEN, the national treasurer, has a background of experience both in his local association at Tulsa, Okla., and in his state organization, coupled with national training on previous boards. The above officers were elected by the delegates. The following were seselected by President Drake:

LONGLEY of North Carolina and Sheehan of Missouri have been national presidents themselves. Kleine of Ohio and Feeney of Pennsylvania were formerly national secretaries. Beier of Minnesota, Swinnerton of California, Thomas of Texas, Thompson of Washington, and Werner of New Jersey have served on previous boards. Friend of Wisconsin has been a local and state president. Barrett of Washington, D. C., a new figure in national circles, is a successful contractor. The committee chairmen include a past national president, Vogelpohl, of Ohio, and those trained by state and local experience such as Dibble of Connecticut, Loftis of Georgia, Murphy of New York, and Utz of New York. For the past six years, the national secretary, George W. Frank, of Buffalo, has been continually in an official capacity with his local, his state or his national association. John F. Donovan has been executive clerk for several years.

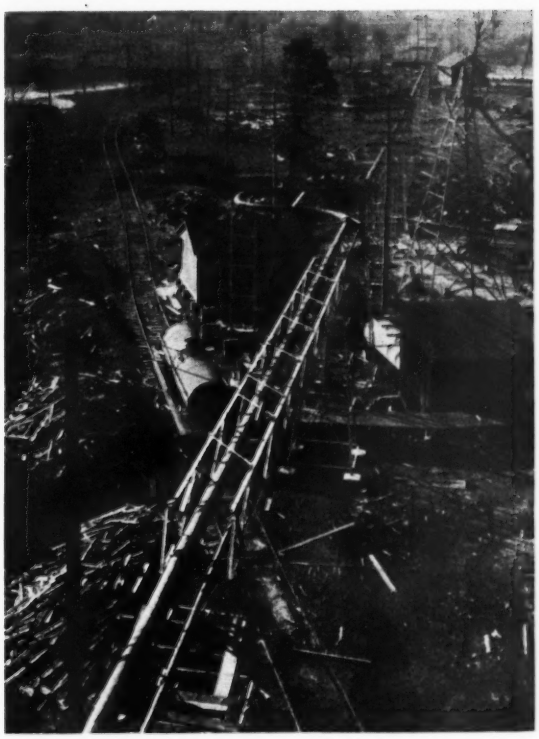
YEARS ago a directors' meeting was occupied largely with internal problems of the association and with trade questions. Some of these still take time, particularly this year, when a special committee was instructed by the delegates to make a detailed study of the association's by-laws and recommend changes needed to modernize the structure of the association. But new problems called forth by the rapid changes in business practices now take up the attention of the directors. An analysis is being made of plans proposed to promote merchandising, such as the authorized dealership and certified plumbing. Educational activities, apprenticeship training and standardization have their individual committees. The scholarship work was brought near to

(Continued on Page 128)



Left to right: W. F. Seisemeyer, Kohler, Wis.; W. K. Glen, Chicago; Charles B. Nash, Pittsburgh; John J. Vogelpohl, Cincinnati; C. W. Wanger, Philadelphia; Russell G. Creviston, Chicago; Albert B. Dibble, New Haven; E. L. Flentje, Chicago, all of sales promotion committee

By FRED DAVIS
Special Lecturer Massachusetts Institute of Technology



An arc welded steam line showing the method of supporting it and showing the relative size and spacing of the expansion loops

Arc Welding and How it Has Been Applied to Plumbing and Heating

One of the outstanding features of the recent plumbing conference at Massachusetts Institute of Technology, at Cambridge, Mass., was the lecture and demonstration on arc welding as applied to the plumbing and heating industry, given by Fred Davis, of the General Electric Co., special lecturer at M. I. T. Excerpts from the lecture make up this article.

THERE is hardly any phase of civilization which does not depend upon pipes in one form or another for its well being. Pipes have been made of one material or another down through the ages—clay, wood, metals and other materials. We shall consider only iron or steel pipes, and we will not consider their manufacture but rather their assembly.

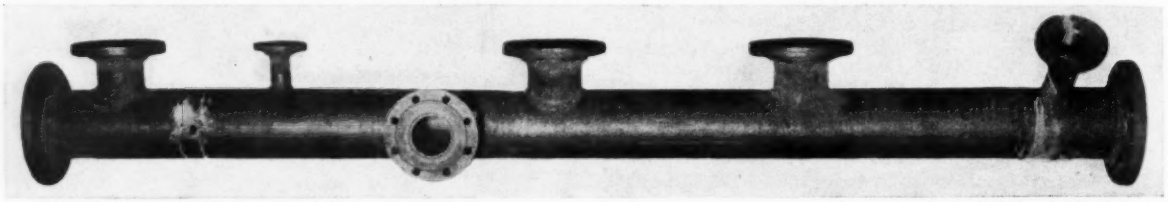
Shortly after men discovered iron and commenced to use it for weapons and other implements, they began looking around for methods of fastening pieces of it together. This resulted in the use of pins and rivets, followed by brazing, after which the art of welding was discovered.

The difference between soldering, brazing, and welding can be described very briefly as follows. Soldering consists of melting an alloy at low temperature onto the heated surfaces which are to be joined together, the surfaces having been covered previously with a cleansing flux to remove oxides. Brazing is a similar process, but is done at a much higher temperature, and the alloy used is generally much harder than solder. In both soldering and brazing, the surfaces which are jointed together remain intact, and are sweated together.

In welding, something entirely different takes place. In pressure type welds, the surfaces which are to be welded are heated until they are soft or plastic, and are then forced together by pressure. In fusion type welds, the surfaces which are to be welded are melted or fused, and then other molten metal is added as a filler. The completed weld made by the fusion process has the structure of a casting.

The earliest welding method was the familiar forge

weld. The pieces of iron were heated in the forge to just the right temperature, care being taken to see that the iron was so placed in the fire that the air blast did not come in contact with it, and so cause oxidation. When the proper temperature was reached the pieces were removed from the fire, dipped in sand or borax, and hammered together. In this case the hammer gave the pressure.



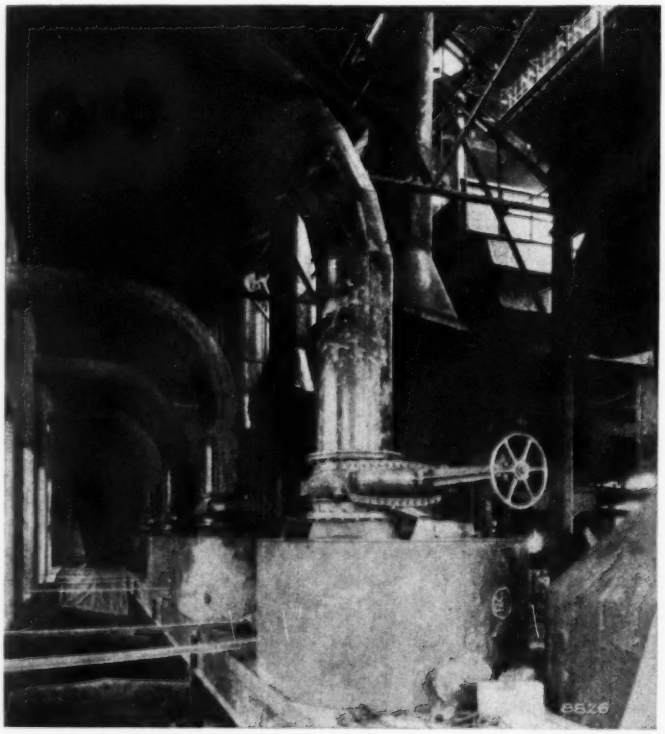
Maintaining alignment or eliminating the tendency of the header to bow is one of the problems which confronts the welder in welding headers of this type. Various methods are employed to overcome it

In 1886, Prof. Elihu Thomson developed a method of pressure welding in which a heavy current of low voltage electricity is passed through the ends of the pieces which are to be welded, the pieces being securely clamped, one clamp being fixed and the other movable. The resistance at the point where the two pieces are in contact causes them to heat up very rapidly. When they become soft or plastic, heavy pressure is applied to the movable clamp by means of a screw, toggle joint or hydraulic ram, forcing them together and completing the weld.

In fusion welding, the heating agent for melting the surfaces for welding is supplied by a gas flame or an electric arc.

Practically all commercial arc welding is done with direct-current and as most of the power delivered by public service companies is alternating-current, it is necessary to convert it. This is done almost universally by the use of motor-generators, or, for work out in the country and portable uses, a gas engine driven generator is used. There are two types of welding generators. For large installations in shops, where several operators are to be supplied in the same locality, a large machine is used. The machine which you will find more interesting however, is the single-operator type. This is a portable motor driven generator, and will supply a single operator with any required current value he needs.

The voltage of a welding circuit is from 60 to 75 volts before the arc is started, and varies from 18 to 25 volts while the arc is operating. The amount of current required for various jobs is determined by the thickness of the metal which is to be welded, or to put it another way, it is governed by the ability of the work to absorb heat. The welding circuit consists of two flexible cables, positive and negative respectively. The positive is connected to the work, and the negative to the electrode holder.

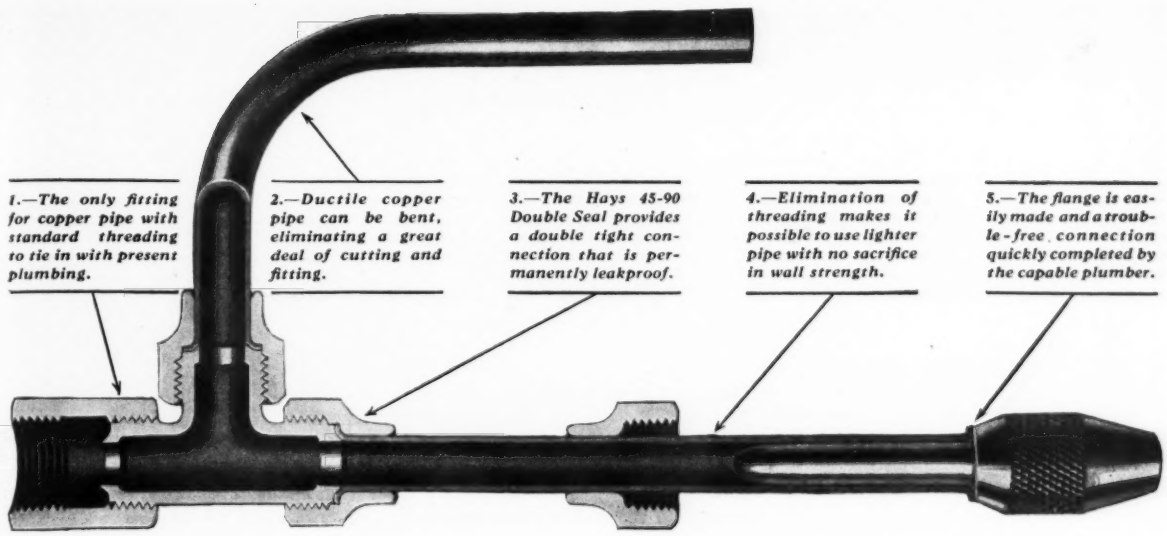


Four 30-inch outlet pipes from wash boxes of water gas machines in Detroit. The bends were made by arc welding

Two Types of Arc Welding

There are two distinct systems of arc welding. The older of these systems is known as the Bernardos System, and is distinguished by the use of a carbon or graphite electrode. The arc is maintained between the end of the electrode and the work, the heat of the arc melting the surfaces which are to be welded. The edges of the work are generally prepared in such a way that when they are fused together the weld will be completed. In case there is an opening to be filled in, the additional stock is obtained by inserting the end of a rod into the arc and melting off the required amount. The carbon arc is also used for cutting metal, and forms a very handy tool for making holes in pipes, tanks, etc.

The Slavianoff System, while not so old as the Bernardos, is used for fully ninety-five per cent of the arc welding as done today. This system uses the same generator and electrical circuit as the Bernardos, but instead of a carbon electrode, one of a metal rod or wire is used. As the arc is maintained between the electrode and the work, the work is fused the same as is the case with the car-


1.—The only fitting for copper pipe with standard threading to tie in with present plumbing.
2.—Ductile copper pipe can be bent, eliminating a great deal of cutting and fitting.
3.—The Hays 45-90 Double Seal provides a double tight connection that is permanently leakproof.
4.—Elimination of threading makes it possible to use lighter pipe with no sacrifice in wall strength.
5.—The flange is easily made and a trouble-free connection quickly completed by the capable plumber.

THE HAYS COPPER PLUMBING METHOD

COPPER PLUMBING—The use of pure copper pipe for plumbing is growing rapidly since the introduction of a practical method of installation which makes its cost little more, often less, than the cost of older systems; while the result is permanent troubleproof piping.

This system, installed in a workmanlike manner means an uninterrupted flow of clear, clean water for the life of the building. The greatest mechanical factor in bringing about this important improvement in plumbing systems has been the Hays Double Seal Connection.

THE HAYS DOUBLE SEAL CONNECTION—This connection provides a double contact between the flanged copper pipe and the connection by means of a 45-degree angle and a 90-degree angle in the seat.

This design insures ample tightness and strength to make a permanently leakproof joint. The flanged pipe is locked easily and securely between the two parts of the connection by tightening the nut.

The 45-degree angle holds the pipe in a wedge, making a seal that is absolutely tight. The 90-degree angle is the shock absorber. It locks the pipe, provides a second seal of positive tightness and protects the first seal by absorbing pulling strains and vibrations.

Hays Double Seal Connections are accurately machined to match the bore of the copper pipe used, permitting the same full flow of water. Each connection is tested under a hydraulic pressure of 200 pounds to the square inch. This precaution insures long life and eliminates leaks or breakdown in service.

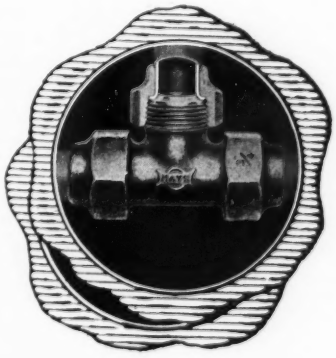
HAYS COPPER PLUMBING METHOD—This is the name given to copper pipe plumbing installed with Hays Fittings.

No special plans are needed. The installation, as far as the position in the building is concerned, is practically the same as that of any other system.

Copper pipe, being ductile, can be led around obstructions; bends at corners unless very abrupt, cross-overs, etc., can be made without the use of elbows. No threading—no gaskets—no white lead.

The only tools needed are hacksaw, file, wrench, hammer, and flanging tool.

ADVANTAGES OF THIS SYSTEM—This piping system, properly installed, is permanently trouble-free and will cause no interruption of the flow of water during the life of the building. Copper pipe will not rust, or corrode, the inside walls remain smooth and the water is never discolored nor its force diminished due to deterioration of the piping system. There will be no built-up obstacles to block the water at some points and develop noise.



If water freezes in copper pipes, they do not burst or crack. Expansion and contraction take place without damage, unless too frequently repeated.

REMODELING AND REPAIR WORK—The Hays Copper Plumbing Method may be used for the replacement of worn out piping, and here, in addition to its other advantages, it eliminates most of the tearing up of floors and cutting into walls which is often necessary where rigid pipe is used.

Hays Double Seal Connections are the only fittings for copper pipe with standard threading which will tie in with present plumbing.

FITTINGS—Hays manufactures a complete line of Double Seal Connections, Tees, Elbows, Couplings, etc., to meet every requirement in the installation of copper pipe.

Every progressive plumber should thoroughly understand this modern method of plumbing. More detailed information will be found in the booklet, "The Hays Copper Plumbing Method." Send for your copy if you do not have it.

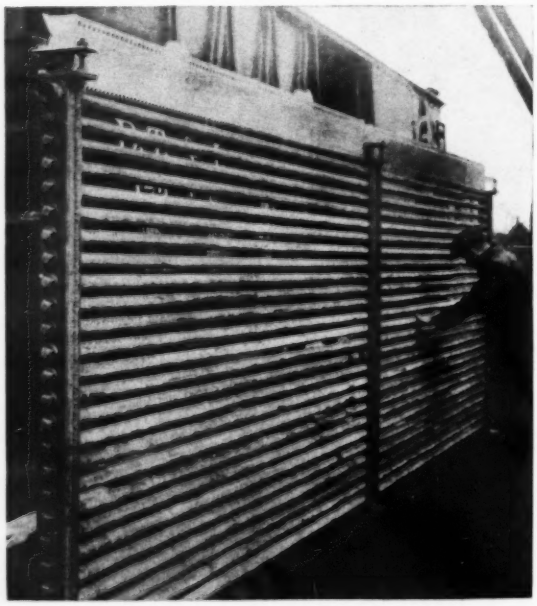
HAYS MANUFACTURING CO.
Erie, Pa.

HAYS DOUBLE SEAL CONNECTIONS

Field work in arc welding a six-inch high pressure gas main. The welder is about to strike the arc

bon electrode, but at the same time, the end of the metal electrode melts and is changed into a vapor, this vapor in turn being projected onto the surface of the work, thereby adding to and building up the surface. This deposition of metal is continuous as long as the arc is maintained, and the rate of deposition varies with the amount of current used and the composition of the electrode.

Just what action takes place in the arc, to cause this transfer of metal from the electrode to take place, is a matter which is not at all settled among engineers and research workers. There is no question however, but that the metal is transferred with considerable vigor, so much so in fact, that no difficulty is experienced in vertical and overhead welding by experienced welders. This transfer of metal has been attributed to various physical phenomena by different authorities, surface tension, difference of pressure levels, vapor expansion, etc., but we hesitate to say which it is.



Another example of arc welding applied to cooling coil fabrication for a gas cooler. The stack consists of 26 pipes, two inches in diameter and twenty feet long

The temperature of the arc is very high. The core of the arc has a temperature of approximately 4,000 degrees Centigrade, while the temperature at the surface of the metal being welded is about 2,500 deg. C. In order to protect the welder from the effects of the arc, it is necessary that all parts of the body be kept shielded from the direct rays. The eyes call for the most care in this respect, and the welder must therefore work with a face shield having a window in it of a special dark glass. The eyes must be protected from the intense visible rays, and also from the ultra-violet and infra-red rays which are invisible.

Electrodes or Welding Rods

The variety of electrodes on the market is legion, there being an electrode to suit almost any requirement. A representative list of commercial electrodes with their analysis, shows carbon contents running from 0.05 to 0.23 and manganese from 0.02 to 0.56 for what can be termed mild steel. Then there are special electrodes of high carbon, manganese steel, Monel metal, bronze, etc. The American Welding Society has standard specifications for electrodes, among which the 0.13 to 0.16 carbon seems to be the general preference. The requirements of electrodes are so exacting that the manufacture of them is what we might call a fussy job. The ordinary fence wire, rivet wire, nail wire, and other wire of this class is too variable in analysis, gas content and other properties to be of much value for electrodes. Therefore the manufacture of electrodes has become a highly specialized business. The wire stock which the manufacturer starts with must conform to a certain analysis, and is then processed to make it suitable for welding. This consists of treating the surface so that it will have certain materials residual on its surface, this makes the arc operate in a more stable condition, and also controls the rate of deposition.

The selection of the proper men, and the training which fits them to be good welders is a matter of first importance, and can not be stressed too strongly. It is a common mistake among employers and foremen to think that any man can weld. In fact, some foremen have been known to go so far as to take a man who was a failure at every task to which he had been assigned, give him a welding outfit and tell him to "go to it."

The "Standard" Time Payment Plan

broadens your market by making it easy for the home owners of your neighborhood to buy plumbing fixtures. Write for complete details of this simple and liberal plan. Use the convenient coupon.

Standard Sanitary Mfg. Co. PITTSBURGH
Division of AMERICAN RADIATOR & STANDARD SANITARY CORPORATION

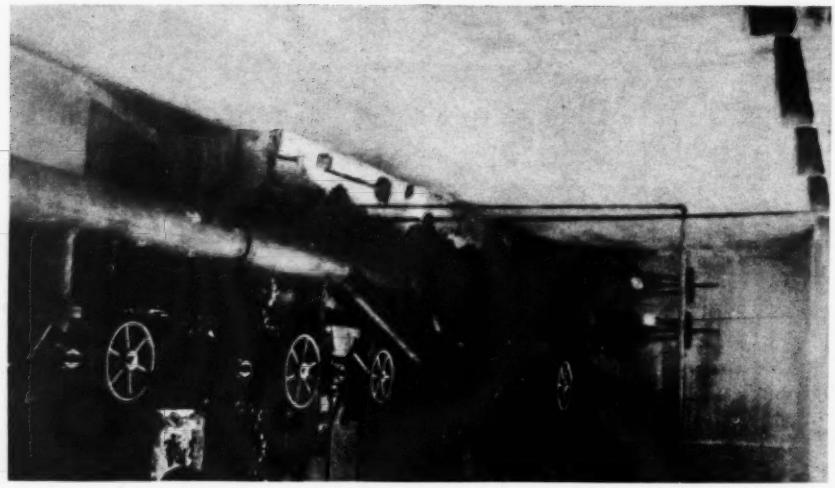
"Standard" PLUMBING FIXTURES

Standard Sanitary Mfg. Co. Pittsburgh, Pa.
Send at once the complete details of the "Standard" Time Payment Plan to

Name.....

Address.....

.....



A twelve-inch header in an oil refinery. The oil interests were second in applying welding to piping. As a consequence, between 1918 and 1922, over 600 miles of pipe lines were welded in Oklahoma and Texas

Of course the man could not hold an arc, let alone weld, with the result that critics of welding in general had very good ammunition. The process always gets the blame, not the man who did the job. As long ago as 1916, large corporations saw the necessity of proper training for welders, and the weeding out of men who could not qualify. The Emergency Fleet Corporation was the first to organize such a school, this being followed in a short time by schools in the navy yards, ship yards, railroad shops and in the plants of the manufacturers of welding equipment.

Practically all of the courses offered to students of arc welding are based upon the original course of the Emergency Fleet Corporation. The students are given definite exercises to perform, which must be completed to the satisfaction of the instructor before proceeding to the next. These exercises are progressive, and take the student through all kinds of welding, the course running from six to eight weeks. Experience has shown that one man out of five has the makeup of a welder, and that the best welders are men of good mechanical ability, good habits, honest, and with the ability to grasp fundamentals from observed results. The quality of a man's work can be judged very accurately by breaking open some of his welds. The depth of fusion, kind of fracture, and quality of the weld metal, all tell their own story.

How Do You Know a Weld Is Good?

One of the favorite questions which designing engineers like to ask is, "How do you know a weld is good?" Our answer to that question is "By looking at it." A man who has had experience at inspecting welds can tell by visual inspection just how good a weld is, provided he is an experienced welder himself. The size and shape of the weld tells how well it is fused in, and how well the heat is distributed, also whether or not enough heat was used. This is true, however, only when the weld is put on in one layer. If it consists of more than one layer, the inspector could not have any idea as to what was underneath. The appearance of the surface will show if too much heat was used and the metal burned, also the appearance of the surface will show whether the arc was long or short, this being a very important matter, as a long arc will give a deposit of very brittle metal, due to air getting into the weld and causing oxidation. A good weld just simply looks good, and seems to grow out of the parent stock, while a poor weld looks "sloppy," burned, and no good. It might be well to remark here that of the two hundred and more welded steel buildings which have been put up, visual inspection was the only inspection that was given the welds. Any other inspection would necessitate destruction of the welds.

Welding engineers, after years of experience and long series of tests, have compiled data so that designing engineers will know exactly how strong a weld is. As a result of this, welded structures and machinery can be designed for welding in exactly the same way as for any other type of construction. They know also just where to place the welds, in order to derive the very best results.

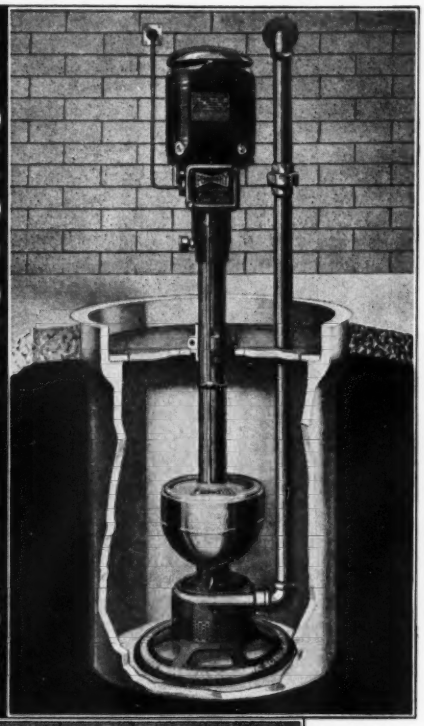
Designers of welded construction always design their structures as far as possible so that the welds merely hold it together, the structural members being self supporting. They also avoid welds in tension, as welds of this type are liable to have stresses in them, due to contraction of the heated metal when cooling.

All pipes of Bessemer or Open Hearth steel have a forge welded seam their entire length, so that advisability of using welding in connection with pipe installations can not be questioned. This is one thing which is usually overlooked by those who take a definite stand against pipe welding.

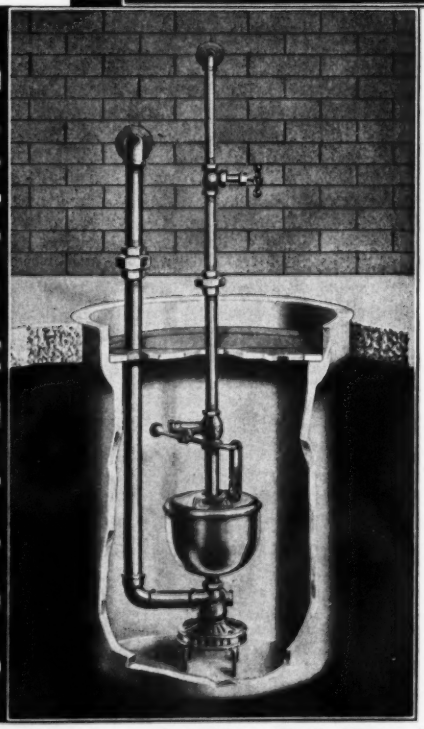
An example of arc welding flange to pipe. Flange ¼ in. Steel pipe 1/16-in. steel

A few reasons why— Plumbing Contractors install..

BRONZE THROUGHOUT



COPPER AND



TRADE PENBERTHY PRODUCTS MARK

TO dispose of seepage below sewer level—or where sewerage facilities are not available—many plumbing contractors prefer one of the units illustrated here. Local conditions determine whether the electric or hydraulic unit will be most economical—but both pumps have many characteristics that appeal to the plumbing contractor.

Both the Penberthy Automatic Electric Sump Pump and the Penberthy Automatic Hydraulic Cellar Drainer are immune to corrosion—they are copper and bronze throughout. Both are thoroughly dependable under the most severe operating conditions, and are economical of electricity and water power. They are fool-proof, require no kid-glove handling, and are easy to install—when properly installed there is no servicing to consume time and reduce profits.

Manufacturing a complete line of both electric and hydraulic units in a full range of types and sizes, the Penberthy organization is especially well qualified to recommend the correct equipment for any specific case. Leading jobbers throughout the country stock both electric and hydraulic units.

PENBERTHY INJECTOR COMPANY
Established in 1886 DETROIT Canadian Plant Windsor, Ont.

PENBERTHY PUMPS
REMOVE SEEPAGE WATER

CADWELL

AIR VALVES

When you are recommending Cadwell Valves to correct heating troubles, be sure you bring out that *all the valves on the system* should be Cadwell Valves.

This not only results in greater profits for you but actually increases heating efficiency and economy for your customer. Do him a real service. Insist that he equip his system with Cadwell Valves.

Ask your jobber to supply you

LOOK FOR OUR CATALOG IN SWEET'S PLUMBING & HEATING CATALOG

The BEATON & CADWELL MFG. CO.

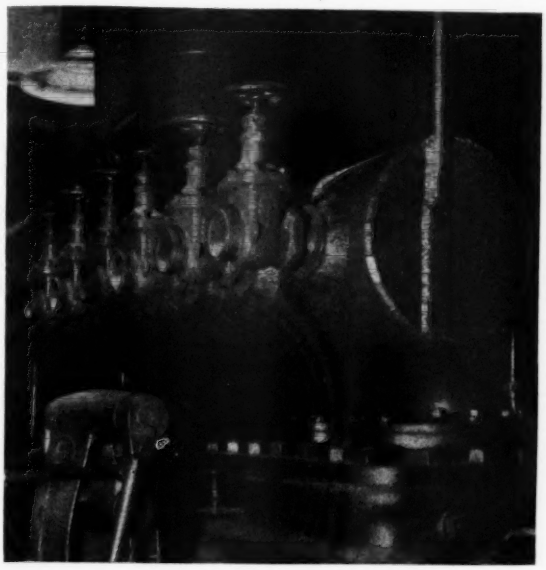
Established 1894

NEW BRITAIN, CONN.

Examples of Welding

Pipe welding was first done on the West Coast about twenty years ago, the Pacific Gas & Electric Co. being pioneers in the art. It was so well developed that at the time of the Panama-Pacific Exposition in 1915, all of the gas mains in the exposition grounds were welded. The oil interests next took it up, and between the years 1918 and 1922, over 600 miles of pipe lines were welded in Oklahoma and Texas.

An application which is somewhat nearer the plumbing line of work however, is found in power house and industrial piping. Some of the large public service companies have their own pipe erection organizations, but the smaller industrial concerns usually have a contractor do their installation work, and there is where the plumbing and heating contractor comes in. The modern processes of industry require a maze of pipes for steam, water, air, gas, etc., and it is the installation of these pipes by welding that should have the deepest consideration of plumbing and heating contractors.



A very fine example of arc welding employed in the construction of a fire pump manifold

Without a doubt, one of the finest examples of confidence in welded construction is to be found in the construction of the Cathedral of St. John the Divine, in New York, a building which is being erected with the idea of its enduring for ages, as a rival in beauty and size of the great cathedrals of Europe. In this building, all the steam pipes for heating and snow melting are of welded construction, practically all of which are buried in solid masonry from eight to fourteen feet thick.

All of the pipe is double extra heavy, and is installed without expansion joints of any kind.

Various Welding Regulations

Rules and regulations in regard to the welding of pipes have been made in some states, but most of them have done nothing whatever about it, except to oppose it on general principles.

The Heating and Piping Contractors National Association has a special committee at work on welded pipe construction. This committee is collecting data regarding the welding of steam, gas, water and oil piping which has already been constructed, and from these data is preparing a manual of standards. This manual, when completed, will recommend the best practices to follow in all classes of piping up to 250 pounds working pressure.

The vocational night schools of Essex County, N. J., in which Newark is located, are organizing classes to instruct steam fitters in the art of pipe welding.

In Michigan, a set of regulations and code for welded pipe was adopted in 1925. This is under the Department of Industry and Labor.

In Ohio, the Industrial Commission has a code for the welding of steam, hydraulic, pneumatic, and refrigerator piping systems.

Ontario and British Columbia have no code, but permit work to be done under inspection of the Boiler Inspection Department.

Practically all of the states are very backward in not allowing the welding of boilers, especially low pressure ones. It is all the more surprising when we consider that there are oil stills operating at temperatures and pressures very much in excess of steam boilers, and still the boilers are ruled out. We have yet to hear of any failures of welded stills.

It is realized that the pioneer work thus far has been done by the large user of pipes, and also that most of the opposition has been from those who have no very great idea of its great future. The manufacturer of fittings has seen its future possibilities, and already at least one progressive manufacturer, in Louisville, has come out with a line of stock fittings in all standard sizes, long and short radius, 45, 90, 180 degrees.

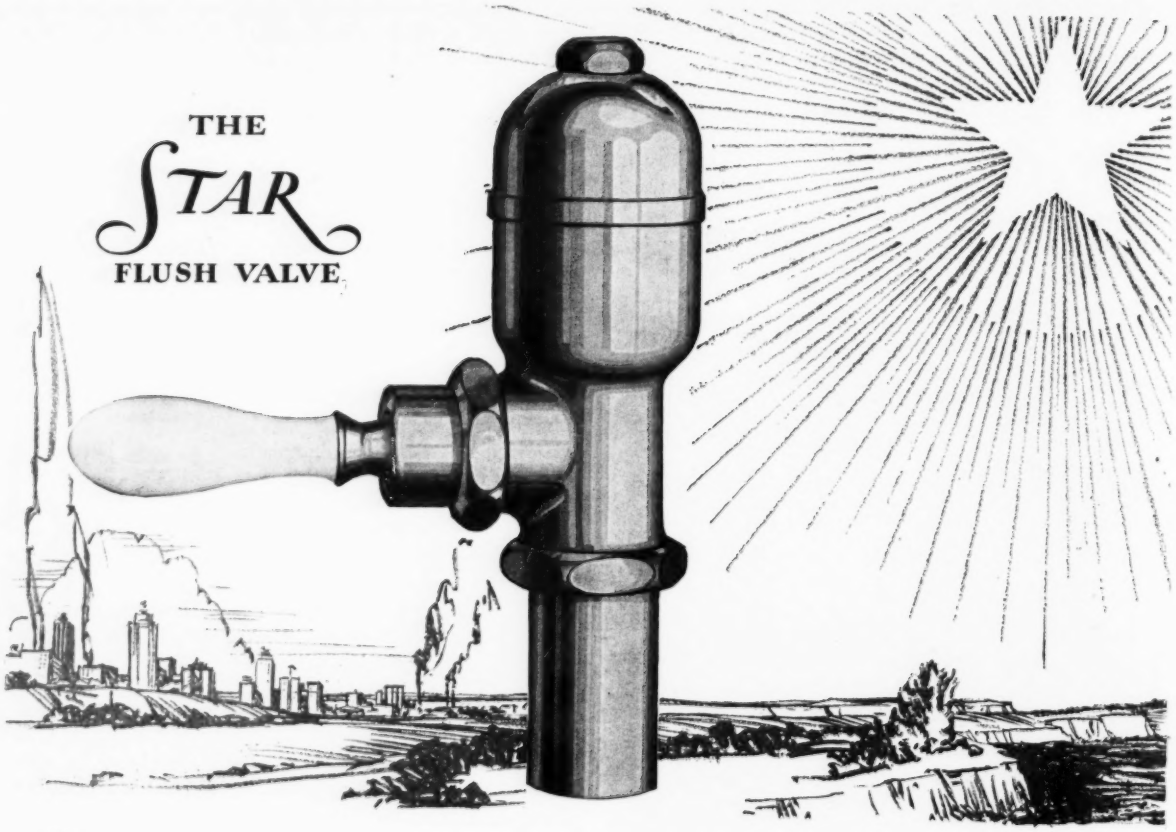
One notable job on which these fittings were used to do away with the heavy cast steel fittings, is at the Bureau of Standards. The two power plants were brought together to form a single unit, and welded construction was used throughout. The system operates at 250 pounds pressure and superheat. The only open joints are at the valves.

At another job in Providence, the installation was nearly complete when some of the large cast steel fittings were found to be defective. In order to avoid waiting for new castings, the contractor fabricated the fittings on the job. These fittings have been in service for twelve years, operating at 200 pounds pressure and 125 degrees superheat.

◆

Training Welders

In the belief that local associations and groups of individual members of the National Association of Heating and Piping Contractors will want to set up a definite and specific training program in welding for journeyman fitters, some suggestions are offered in an eight-page booklet entitled "Training Your Welders," by John H. Zink and S. Lewis Land, concerning the organization and maintenance of such a training program. More detailed information will be found in Chapter XVI of the forthcoming "Standard Manual on Pipe Welding." This volume will also contain complete information concerning the skill which the fitter will need to acquire as well as the related technical information.



BEAUTY, outstanding performance and economy characterize the STAR Flush Valve. This new Sloan achievement is not only an efficient valve but a truly distinctive addition to the appearance of the modern bathroom.

The attractive appearance of the STAR is a distinct advance in flush valve design. Of simple design and graceful proportions, it harmonizes with any fixture. Its very simplicity makes cleaning easy, a feature that will be widely approved.

In its construction the STAR has, of course, those proven Sloan features which have established and maintained the world leadership of the Sloan Valve Company.

Regulation of the amount of flush is easily secured without shutting off the water or disturbing the by-pass; the unique Xpelor cleanses itself with a full stream of water at every flush; the main seat is the famous Sloco —reversible and easily replaced.

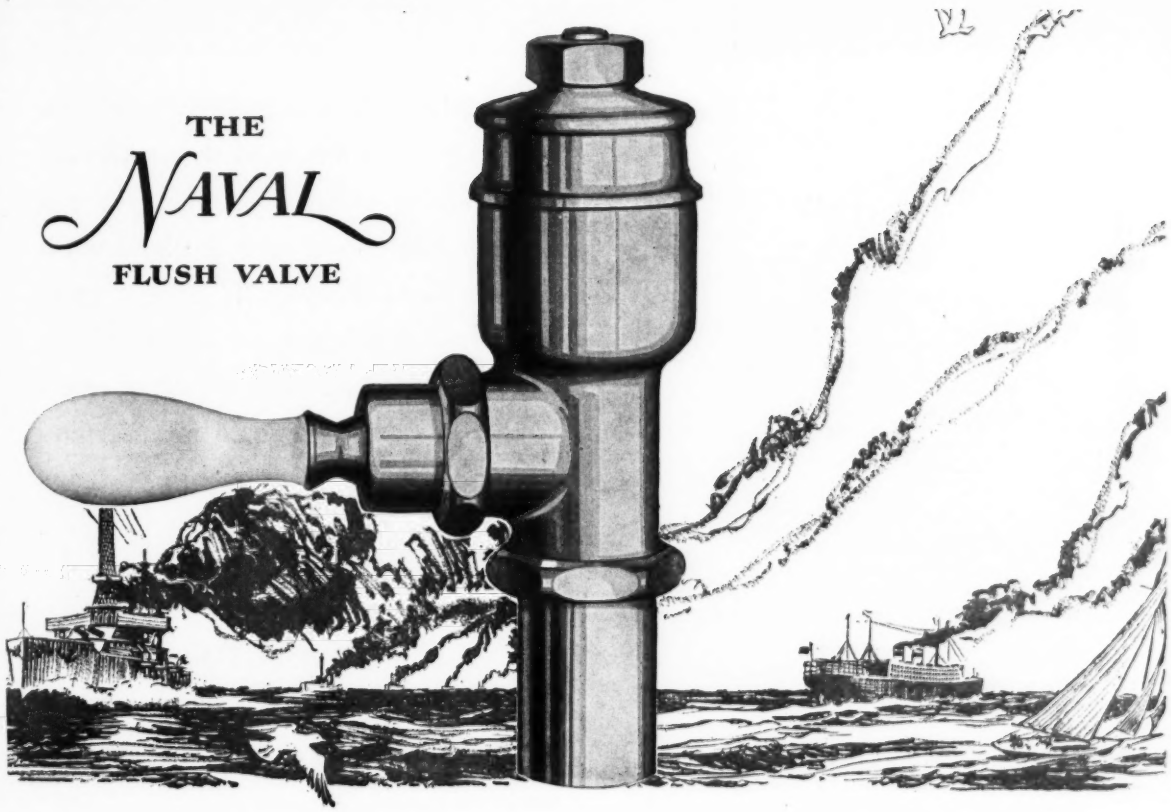
Deep seal bowls are no problem to the STAR with its positive refill action, while the unusually large waterway insures successful operation at low pressure.

The STAR is an ideal all-purpose flush valve for buildings of every type. Its moderate price makes exceptional appearance and performance possible in any flush valve installation.

SLOAN VALVE

Branches in all

THE
NAVAL
FLUSH VALVE



IN the NAVAL Flush Valve the Sloan Valve Company offers to the trade the wealth of experience gained in furnishing flush valves for ocean steamships and other installations involving "bad" water conditions.

This handsome, highly finished flush valve is ruggedly constructed and is made from special alloys that resist the action of salt water on metal. Probably no service tests the qualities of a flush valve more severely than the water conditions which prevail on ocean, lake and river vessels. Salt, sand, dirt and silt are drawn into the sanitary system and soon render ordinary flush valves inoperative.

The NAVAL Flush Valve has a self-cleansing by-pass which successfully handles water having a large foreign matter content.

In addition, the large, free waterway of the NAVAL Valve offers little opposition to the flow. This insures operation of the valve at low pressures.

Outside regulation of the amount of flush is easily accomplished without shutting off the water, a convenient feature when the vessel is under way.

The main seat is reversible and easily replaced. Every operation necessary to repair or replace any part of the valve may be performed without removing the valve from the closet bowl.

The features which make this flush valve so practical for installations afloat are equally advantageous ashore in localities where sandy or corrosive water is found.

CO. CHICAGO

principal cities

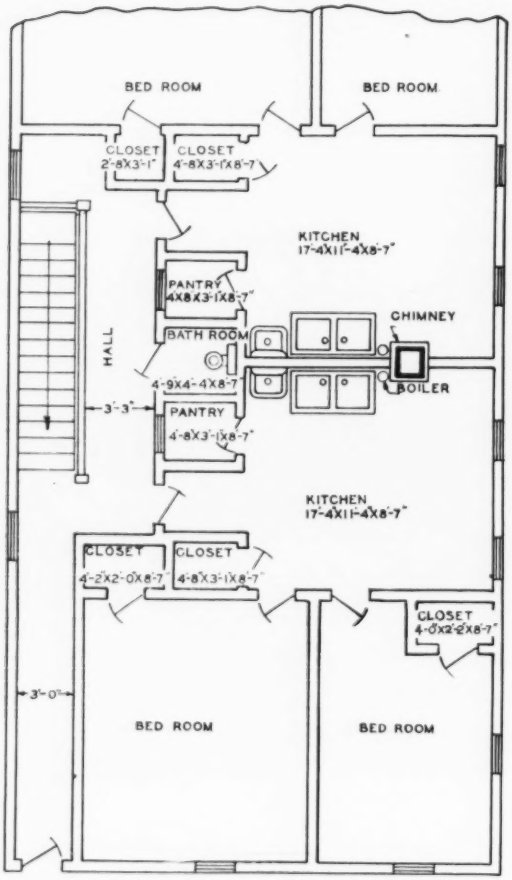


Fig. 1—The original floor plan of a house in Bridgeport, Conn., which is being remodeled by apprentices to provide actual experience for them

The plumbing industry of tomorrow will be in the hands of those who are in training today. Changes do not occur over night and if plumbing is to be maintained on its present high level, or if it is to be raised to higher levels, the master plumber must lend his whole-hearted interest and support to apprenticeship training.

Training the Master Plumber of Tomorrow

By HARRY DAVIDSON

A FEW weeks ago, the writer of this article, calling upon a leading plumbing contractor in Eastern Massachusetts, learned with surprise that in that town, which supported six or eight plumbing establishments, there was not a single plumber's apprentice.

The meaning of this is that in the town we are speaking of, no effort was being made on the part of the plumbing trade, to supply the future need of the local industry for skilled workers.

There would be nothing to worry about if this were the only town in this predicament. So far as we are able to judge however, there are hundreds of towns and thousands of plumbing concerns that are making no effort along these lines, which in the past were considered of such vital importance to the welfare of the trade.

This is not a new situation that has but just made its appearance. As a matter of fact it has been coming on for years.

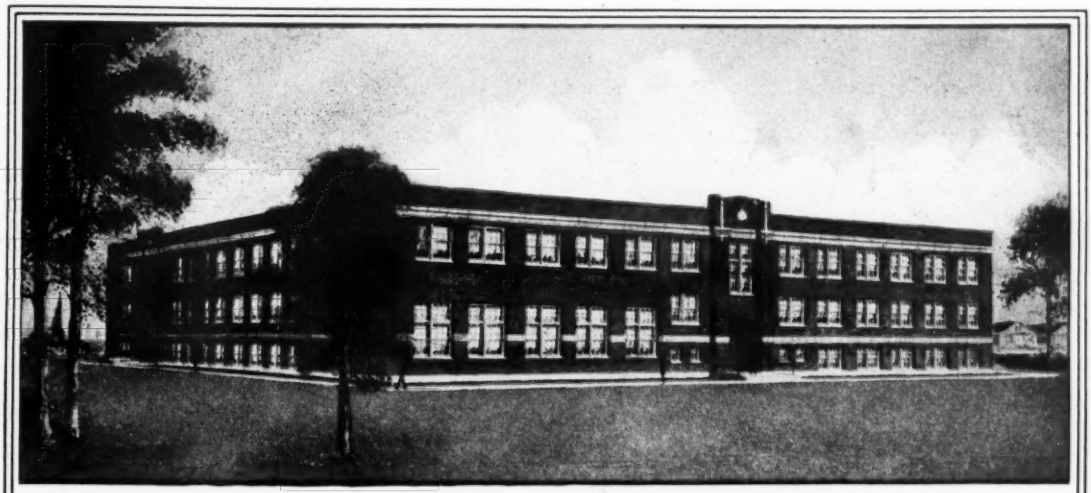
Time was, years ago, when a young lad entered the plumbing trade in an orderly manner, by serving an apprenticeship for a definite number of years, under the instruction of a journeyman. Under modern conditions however, it is an actual fact that we cannot just tell how a lad does become a journeyman. Certainly in only a few instances does he get there through the serving of an apprenticeship. In many, many instances he scrambles along, picking up a bit of knowledge here and a bit there, seldom under anything like definite instruction, until somehow or other he finally reaches a point where he can caulk joints, cut threads and do a few other things pertaining to plumbing, and then he feels that he has become a journeyman plumber. Is it to be wondered at that in a great many such instances as this, he quickly comes to the conclusion that he has reached the pinnacle, and forthwith shuts his eyes to all further study for advancement?

We suspect also that the passing of lead work has been harmful to the morale of the plumbing trade.

Such a man as we have been describing after a time goes into business for himself. What is the result? The result is that one more has been added to the hundreds and hundreds of master plumbers who are absolutely unfitted for such responsibilities; one more competitor has embarked to take work at a loss from better trained men who would take it at a profit.

This entire situation could be greatly elaborated

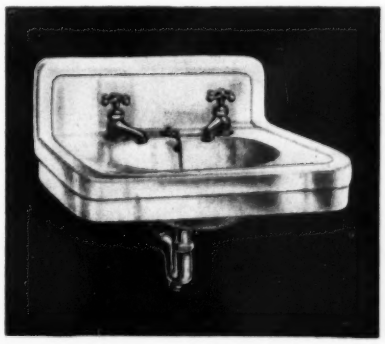
MEETING ARCHITECTURAL STANDARDS OF QUALITY



North Kansas City High School, Kansas City, Mo.; Architect: H. D. PAMPEK, Kansas City; Plumbers: JUDD PLUMBING & HEATING CO., Kansas City; Solid Nickel Silver plumbing fixtures by THE JOHN DOUGLAS CO., Cincinnati, Ohio.

SOLID NICKEL SILVER PLUMBING FIXTURES BY DOUGLAS IN NORTH KANSAS CITY HIGH SCHOOL

IN these beautiful, long wearing sanitary fixtures, the desirable silvery white color as well as the required physical properties have been obtained by the use of Solid Nickel Silver containing 18 to 22% Nickel. This Nickel content has been found essential if the fittings are to retain their lustrous sanitary appearance during long, severe service. Solid Nickel Silver fixtures do not chip and are easy to keep clean. They resist corrosion and are not easily marred or discolored during installation or use. Being similar in hardness, toughness and strength to tough bronze, these modern sanitary fixtures give exceptional wear-resistance to valve seats. They meet every architectural requirement for high quality equipment.



18% 22 Nickel SILVER

INC. NICKEL THE INTERNATIONAL NICKEL COMPANY, INC., 67 WALL STREET, NEW YORK, N. Y. INC. NICKEL

if it were necessary, and many other phases could be brought into the discussion. We will content ourselves however, with going only this short distance into the situation that confronts the plumbing trade.

Apprenticing System Once Solution

In the writer's own mind however, he is well satisfied that many of the ills that have come upon the plumbing trade would never have appeared if we had stuck to the apprenticeship system. That system was far from perfect, and we could tell you of some of its weak points, but nevertheless it turned

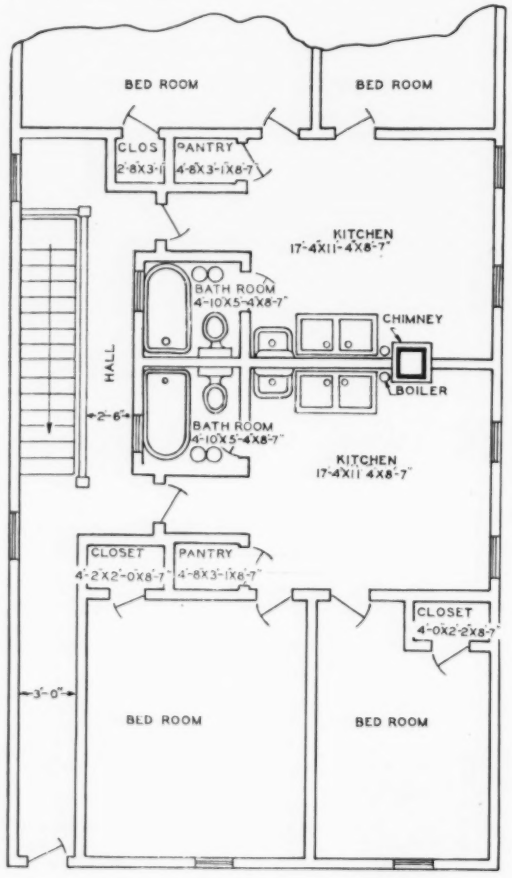


Fig. 2—The floor plan of Fig. 1, revised by the apprentices to include extra plumbing facilities

out better mechanics than many of our present nondescript methods or lack of methods turn out.

Whether we could ever get back to that system again is a question. Even if we could, we would probably want to see it modified to quite an extent, for the apprenticeship system had in it some wrong conditions. It seems an impossibility under present conditions to bring it back. That being so, what other recourse is there? One answer is that the trade school offers the greatest promise. We do not mean by this that the trade school is a cure-all for the situation we have described, but we fully believe that in the absence of the apprenticeship system, the trade school offers more of the benefits of that system than anything else that we know of.

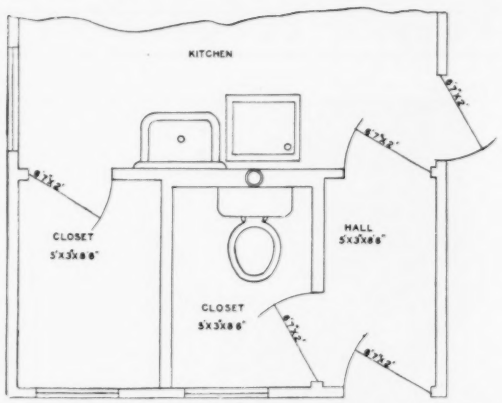


Fig. 3—Plan of the plumbing job remodeled by the Bridgeport students last year. The lay-out was changed to that shown in Fig. 4

We are well aware of the tendency of some to look askance at the trade school plumber, and we have heard of some of the foolish things that some of these plumbers have done when first turned loose into practical plumbing practice. We have also heard of graduate engineers from famous engineering institutions doing unwise things when they first met practical problems. In both cases it takes only a short time for the graduate to catch on to the practical conditions that he meets, and once having overcome this situation, the boy or man who has received definite training is in position to forge ahead.

Trade School Now Big Factor

So then, we feel that the trade school, instead of being looked upon with condescension, should be acknowledged as perhaps the greatest factor we have available for the proper education of future plumbers.

Not all of us, we are sure, are well posted on what is being accomplished in modern trade schools. Not all of us know that various states have taken hold of the subject and now include a trade school system as one of their most important educational departments, and that the United States government has a most liberal policy for helping financially those

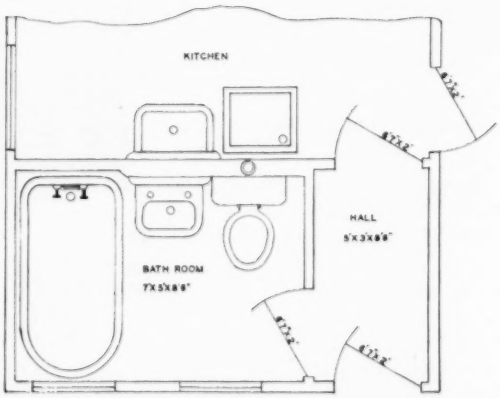
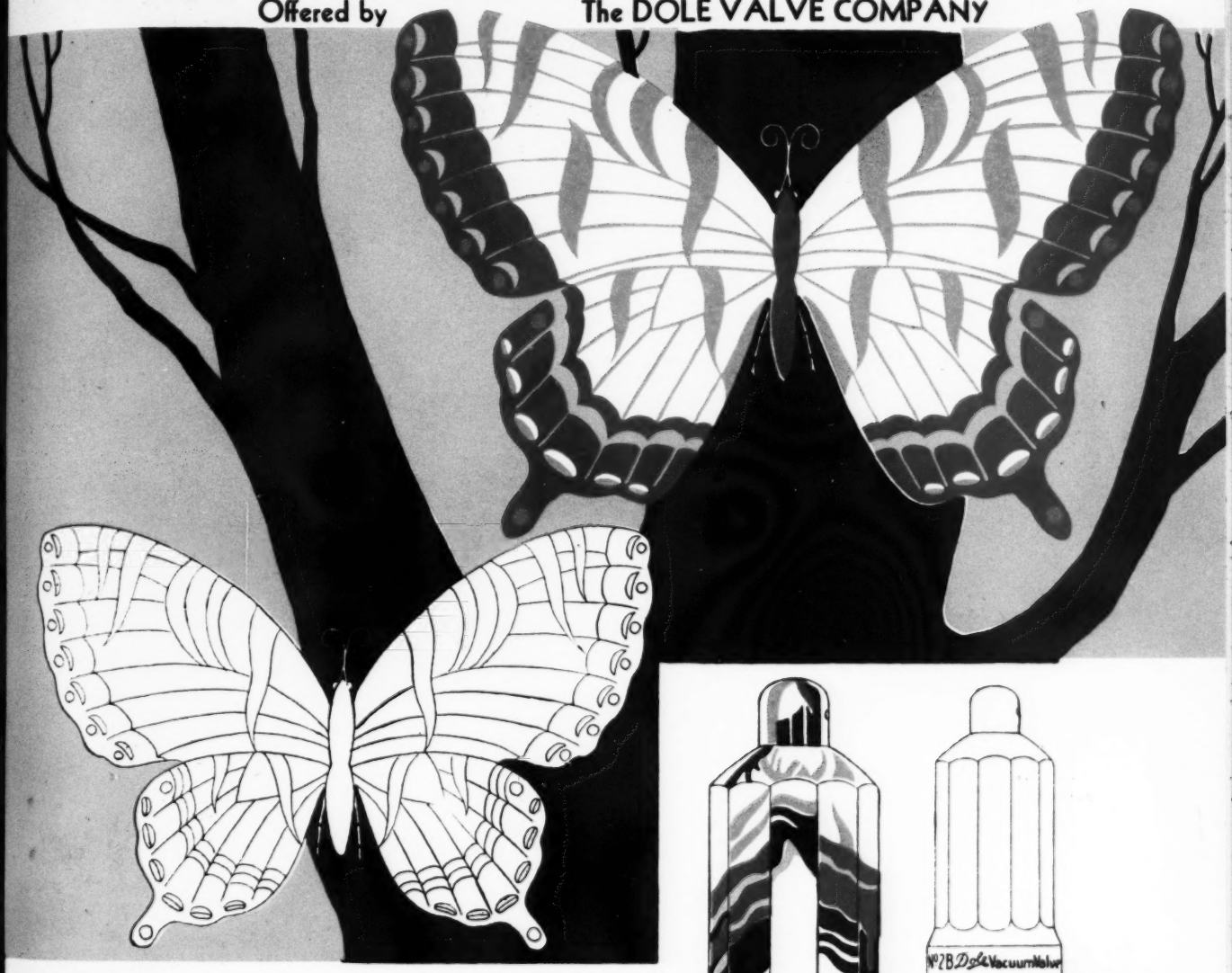
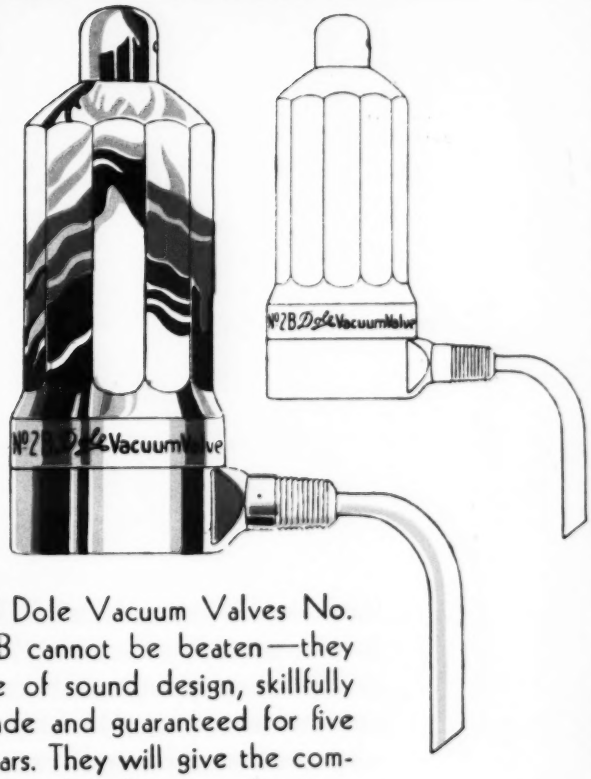


Fig. 4—The remodeled plan. All of this work was carried on under the strict supervision of the instructor and only first class results were accepted

$1,000.00 IN CASH PRIZES

Offered by The DOLE VALVE COMPANY





Manufacturer of

DOLE AIR and VACUUM VALVES

THIS beautiful butterfly has caught your eye!

But you are at a loss to see the connection with Dole Valves?

Here it is—This is the third of our series of six coloring contests. We figured they would attract everyone and be of special interest to the young people. Anyone may enter.

We are giving away 325 cash prizes.

It is just to remind you that the performance of Dole Vacuum Valves No. 2-B cannot be beaten—they are of sound design, skillfully made and guaranteed for five years. They will give the comfort and fuel saving of a two-pipe vacuum system when properly installed on a one pipe job. And they are reasonably priced—listing at $4.00 each.

Many apartment and home owners who can not or will not pay the high prices will be

CONTINUED ON NEXT PAGE

Here's how it looks inside the New DOLE Vacuum Valve No. 2-B.

PRIZES and RULES FOR THE COLORING CONTEST

These prizes and conditions apply to this, the third of the six competitions. Each competition is separate and complete in itself.*

Prizes—1st prize - - $50.00 cash
2nd prize - - $25.00 cash
3rd prize - - $15.00 cash
4th prize - - $10.00 cash
Fifty consolation cash prizes of $1.00 each

The prizes will be awarded for the most attractive and neatest coloring job done on the outlined valve and butterfly shown on the reverse page. To insure absolute fairness the Editor of Domestic Engineering, a representative of the Plumbers Trade Journal and two prominent artists—Mr. Ellsworth Young and Mr. Edw. T. Grigware—will decide the awards. Their decisions will be final. No particular skill is required to enter—everyone should try. Names of winners will appear as soon as possible in this book.

Remember, anyone (not connected with The Dole Valve Company) may enter.

Use paints, crayons, or ink—Any color you wish to tint the outlined valve and butterfly The ones we show in color are just a suggestion. You don't have to use the same colors.

Carefully cut out the whole page and send it with your full name, your age and complete address to—

THE DOLE VALVE COMPANY
1931 Carroll Avenue Chicago, Illinois

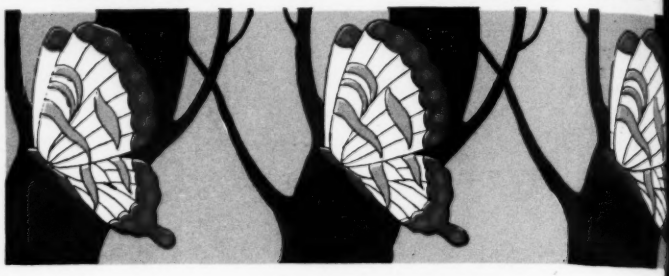
You must mail the page before midnight, December 10. Entries postmarked later can not be considered. You may send as many entries as you wish for all or any of the six competitions. Watch next month for the 4th competition.

*There will be a special award of one $100.00 cash prize for the best complete series of six—enter each and all of the six competitions. Send them before their closing dates.

NOW, READ THE RULES AGAIN, CAREFULLY.

THE DOLE VALVE COMPANY

1913-1933 Carroll Avenue - - Chicago, Ill., U. S. A.



CONTINUED FROM THE OTHER SIDE

EXTRA PROFIT FOR YOU

attracted by your reasonable quotation when you figure on Dole Vacuum Valves.

There is new, bigger sales volume and extra profit for you handling Dole Vacuum Valves No. 2-B.

Dole Syphon Air Valves No. 1 are also guaranteed for five years—they also yield good profit to The Trade and real satisfaction to the customer.

Remember there are more than 4,000,000 Dole Valves in use.

Now cut this page out carefully for the young people—someone you know will want to try for these cash prizes—they are given away absolutely without obligation.

You, yourself, had better write today for attractive quotations and a supply of literature, showing the complete line of Dole Valves, imprinted, free, with your name and address.

We can show you how to make money and keep on making money with Dole Valves

Dole

Vacuum Valves No. 2-B
Straight Shank Vacuum Valves No. 6-B
Syphon Air Valves No. 1
Straight Shank Quick Vent Air Valves No. 3-A ⅛"
Straight Shank Quick Vent Air Valves No. 3-B ¼"
Straight Shank Quick Vent Air Valves No. 3-C ¾"
Quick Vent Air Valves Nos. 8 and 9 (Vacuum)
Compound Gauge—4½"

VALVES

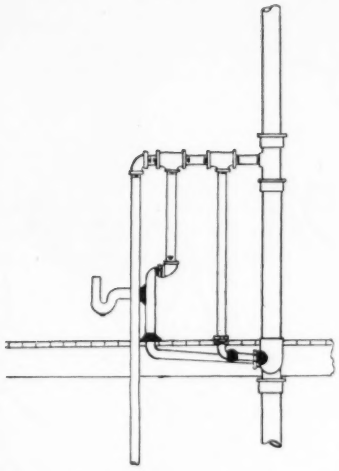


Fig. 5—Elevation of plumbing shown in Fig. 3, before it was remodeled

states that meet certain high standards in trade school work.

It will be a good thing for all of us to know more about this subject, and therefore we are going to tell you what the state of Connecticut is doing in this direction.

The writer recently made the rounds of nearly all the Connecticut state trade schools, and therefore speaks on the subject from first-hand knowledge.

Connecticut, largely interested in manufacturing, has established these trade schools in fine buildings, well equipped, in thirteen or fourteen principal industrial centers of the state.

These trade schools are open to boys coming from the grade schools who are able to pass certain requirements, to employed boys who may receive part-time instruction, and to high school boys, who may attend trade school for five half days each school week and forty hours each vacation week. Moreover, wherever it seems advisable evening trade classes are conducted.

It must not be supposed however, that these trade schools are in the business of turning out young plumbers wholesale. A talk with the plumbing instructor in any one of these schools will quickly convince one that the opposite of this is the fact.

Each one of the plumbing instructors in the Connecticut state trade schools is a journeyman, expert at his trade, and especially chosen for this particular line of work.

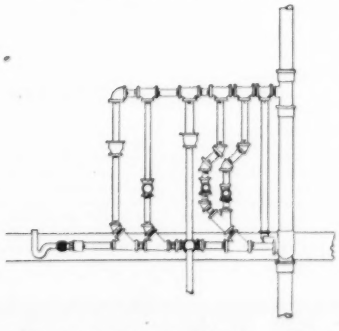


Fig. 6—A similar elevation which shows how the piping of Figs. 3 and 5 was changed

Teachers Trained First

The state conducts trade teacher training classes, and to enter these classes, and later to accept a teaching position the applicant must not only be a recognized expert at the plumbing trade, but must have the right personality, be a man of strong character, and have a liking for boys. The requirements

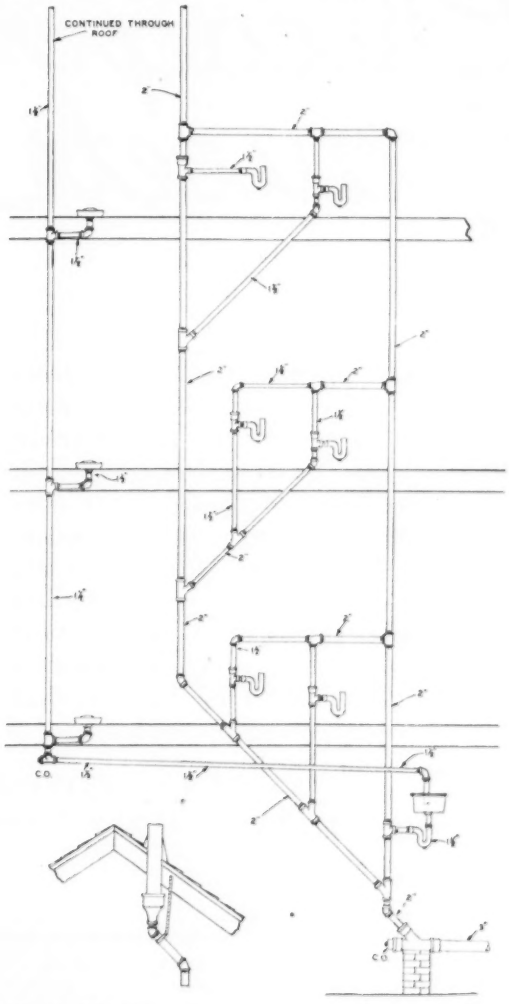


Fig. 7—This is another elevation made by a Bridgeport student showing the bathroom and kitchen stacks for one of the special remodeling jobs done by that school

are definitely set forth in the trade school prospectus, and they constitute a wise provision, for it has long been an established fact that in any such work as this, the success or failure of it very largely depends upon the character of the teacher.

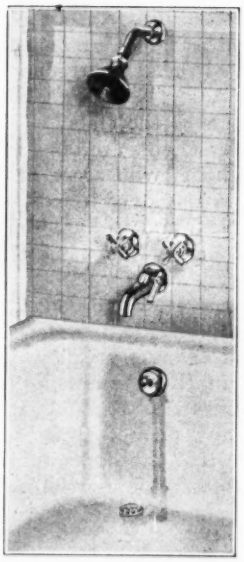
These state trade schools are conducted on the lines of a regular plumbing business. Each student is required to work eight hours for five days of the week.

The trades courses for boys are of two years' dura-

There are no comebacks on Chicago Faucets!

"I've been pushing Chicago Faucets as long as I've been in the plumbing business. I always try to sell them first because I know that once sold, there are no comebacks. That goes for both new work and old work. Chicago Faucets are there to stay. There's a lot of satisfaction in telling people that they will never have faucet trouble any more because it breeds the kind of confidence that leads to bigger, more profitable sales."

ANDREW G. PETERSEN,
Chicago Master Plumber



The Chicago Faucet Company,
2700-22 No. Crawford Avenue,
Chicago, Ill.

I'd like to be checked in on a good thing, so send me a copy of your new 76-page catalog.

Name.....

Address.....

Six Big Features

The "Manhattan" Bath Fixture has (1) new shower head with removable face plate (2) only two valves each with standardized, removable unit (3) 1-piece fitting for shower and tub connections (4) automatic diverter on spout (5) new mechanical waste having everything accessible from front (6) can also be furnished with integral automatic stops which shut off water when Quaturn valve is removed for re-washering. No other bath fixture has all these features!

CHICAGO FAUCETS

tion, 2,400 hours per year, or a total of 4,800 hours, and at the end of that time the boy is estimated to be the equal in ability of the boy who has served a four years' apprenticeship. We haven't a doubt that this is true, for the boy is under intensive direction during that time, and his time is divided and applied according to the best educational standards. The hours just named constitute a minimum, but often in the Connecticut state trade schools, boys who have not been up to standard at the end of the 4,800 hours, have been given additional training, even to the extent of six months. The policy is to so train the boys that when they are graduated they are well qualified, considering their term of service.

We are able to present specimens of the work of the students of the Bridgeport, Hartford and Willimantic schools, which we believe at the present time take the lead in the training of plumbers, among the Connecticut trade schools.

Actual Installation Work Done

Before going into the matter of the drawings, we want to say that in each of these three schools, it is the policy to obtain each year one good sized plumbing installation for the advanced plumbing class to construct.

This year the Bridgeport class is remodeling the plumbing in a three family house; the Willimantic school is at work on a similar job, while the Hartford class is installing the complete plumbing and heating in a fine residence in the neighborhood town of Windsor. In the latter instance it will be interesting to know that the entire structure, carpentry, masonry, painting, plastering, etc., etc., is being done by the trade school boys, and it is as fine a job as one could ask for.

Each branch of the work is under the personal and constant supervision of the instructor.

We believe these installations have to a large extent been looked upon with favor by local associations of both masters and journeymen. Generally there will be found a small percentage of members in each of these organizations who look upon such a proposition in a narrow-minded way, and it was good news to hear that in Connecticut there was comparatively little objection.

It would certainly be unwise and unjust for a trade school to enter into general competition for work, but where it is limited to a comparatively small amount of work each year, we believe all objection should be withdrawn.

If plumbing contractors in the trade school centers only realized what these schools can do to benefit trade conditions, we feel sure that instead of obstructing the schools in their attempt to give the boys the benefit of a small amount of work under practical conditions, they would lend their support.

Master Plumbers Should Support Work

The active support of master plumbers is a great need, and would benefit the trade school movement more than anything we know of. The trade school as it appears to us, offers, at the present time, the surest supply for the future, of intelligent, educated, skilled plumbers, and it would seem the logical thing

(Continued on Page 158)

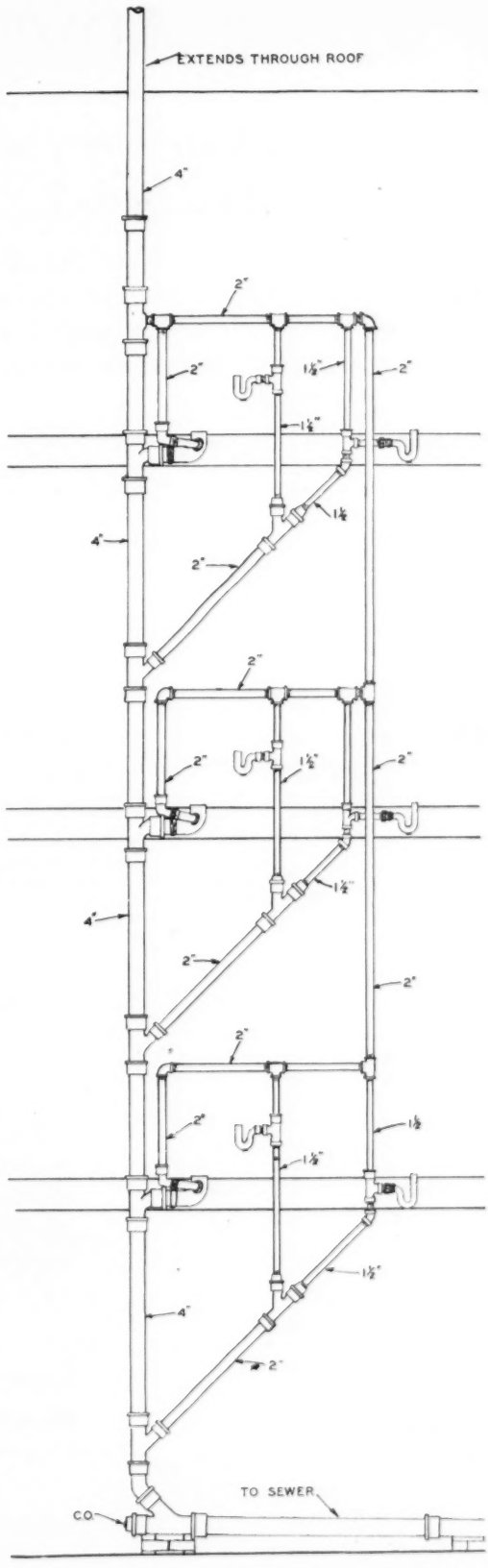


Fig. 8—The apprentice of today who can turn out designs and drawings such as the one illustrated has gone a long way toward developing into a successful master plumber of tomorrow

RETAIL ADVERTISING SERVICE

Two Cars—why not Two Baths?

It ought to be easier to sell the idea of two bathrooms than the idea of two cars. The appeal goes deeper—particularly now, when the winter social season is about to open and the home comes in for critical study.

How to secure the cuts for these newspaper ads

Every other week we publish two new illustrations. They're 35c *each—usually ordered for twelve weeks in advance at* $4.20. *We send the two new cuts every other week.*

A single column ad

Thanksgiving —A Symbol

Thanksgiving stands as the symbol for the social season that is getting under way. Entertaining is difficult — sometimes embarrassing—if the house does not have a second bathroom. Small space, and a small sum, will put an extra bath in your home. Just phone.

(In this space Your Name, etc.)

Here's a Sales Letter on the second bathroom

Dear Madam:

It's embarrassing sometimes--isn't it?--when you are entertaining a group, and can offer the facilities of only one bathroom.

You've noticed, no doubt, that modern apartments are always advertised as having two baths. It's a convenience thoroughly in line with modern living standards.

You will be surprised at the small space required for an extra, complete bathroom. And we can offer you the convenience of a partial payment plan if you desire it.

We would appreciate an opportunity to go over your house plan with you to show you how the extra bath can be fitted in.

Won't you telephone and make an appointment?

Very truly yours,
HARRY BROWN

Give this publicity on the second bathroom to your local newspapers

SINGING IN THE (ONE) BATHTUB

"I'd like to see the person with courage enough to sing in the bath tub, where there's only one in the house," says Harry Brown, local plumbing contractor.

"He would be rudely interrupted, because with only one bath in the home there isn't time for any vocal exercises in it. Some other member of the family will howl the singer down.

"Of course, the singing in the bath tub goes merrily on where there's more than one bath," concluded Mr. Brown.

An Extra Bath

In a small space, for a small down payment. Why not have this wonderful convenience?

(In this space your name, etc.)

For your classified ad

Every Family Needs More Than One Bath

Even if the convenience of the family does not require it, the second bathroom is a necessity in the home where any great amount of entertaining is done. We recommend the extra bathroom as an investment, too—it adds far more value to the home or apartment than is represented by the investment. Telephone for particulars—without obligation.

Experts in Plumbing Remodeling

(In This Space Your Name, etc.)

Unusual, isn't it? It will attract attention

To the Basement for Business

Get under the skin of the parents in your community by using the copy that is given below. It's a strong and timely appeal, on the personal side—and it has an investment angle, too. Use the copy to get business from the basement.

Will Your Young People Seek Recreation at Home?

PUT the proper recreational equipment in your home—and the young folks will have their good times there. A modern heating plant will rescue the basement for this important use—and it will add value to your property far beyond the investment. Phone for an appointment and particulars.

(In this space Your Name, etc.)

Turn the basement into a recreation room--that will keep the young people at home. A modern heating plant will enable you to do this--and add attractiveness and value to your home. Phone for particulars--without obligation.

(In this space Your Name, etc.)

If you are using any of the material on these two pages—no matter in what form—we'd be glad to have copies. We like to keep in touch with what readers are doing—and to offer further assistance where possible.

Hand this publicity item to your newspaper

A DANCE TONIGHT —IN THE BASEMENT

"Those homes in which the basement has become a real recreation place," says Harry Brown, local heating contractor, "manage to keep their young folks at home. Any one would want to stay in some of the basements I've seen developed after we've put in a modern heating plant.

"Besides, the rescue of the basement from service as a catch-all adds value to a house—far in excess of the cost. A home isn't modern without a modern basement."

And mail this letter to your prospects

Dear Madam:

We "moderns"--at least the younger set--have acquired the habit of looking for their recreation largely outside the home.

One big step has been taken in the direction of making the home the center of family life again. That's the modernization of the basement--its reclamation from the office of catch-all to that of recreation hall.

First, a modern heating plant, clean, efficient, tucked away where it does not interfere. Then comes the possibility of a billiard room, a small dance floor--perhaps a large one--a card room, etc.

Even without these advantages which follow it, a modern heating plant is a worthwhile investment. It's clean--cuts down house cleaning costs--and it adds value to a home. With its automatic control it adds unbelievable convenience.

May we spend a few minutes with you discussing the subject? Just phone.

Very truly yours,
HARRY BROWN

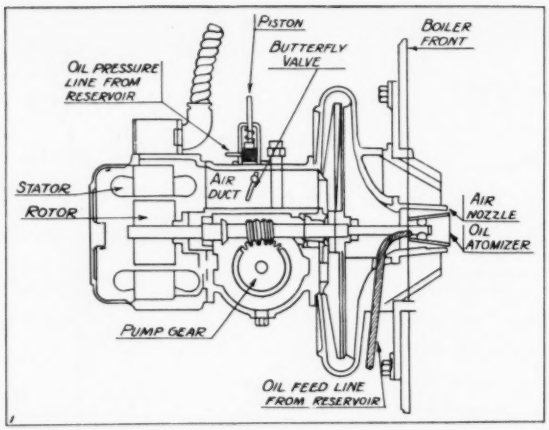


Fig. 1—Longitudinal section through air duct

Automatic Air Control Solved This Oil Burner Trouble

This is the story of an out-of-the ordinary stack condition encountered on an oil burner installation. An investigation proved beyond doubt that the installation embodied the three factors essential to proper operation. Still, the burner refused to operate correctly when cold and its actions pointed to an inadequate chimney capacity. The problem was solved by automatic regulation of air. It is worth learning how this was accomplished.

By K. STEINER and P. R. UNGER

A SOMEWHAT unusual stack condition existing on an oil-fired boiler with automatic control gave rise to a problem in air control that was solved in an equally unusual manner. The installation embodied the three elements essential to successful oil burner operation, namely: Correct refractory treatment of firebox, correct location of burner nozzle to give maximum heating surface exposure to hot gases, and correct size of chimney and breeching. Nevertheless, there existed a condition of apparent inadequate chimney capacity when the boiler was cold and initial combustion occurred.

The seeming inadequacy was indicated by a backward sweep of flame, air and smoke through the lower air opening of the firing plate into the boiler pit, and also by an objectionable rush of smoke issuing from the flue doors and cleanout plates into the basement atmosphere. Within a few moments, however, normal operating conditions were established as the upward flow of hot gases increased the draw of the chimney. Short as was the duration of this puff-back, it was a disagreeable feature and a remedy had to be found for its elimination.

A definite review of the sequence of operations in

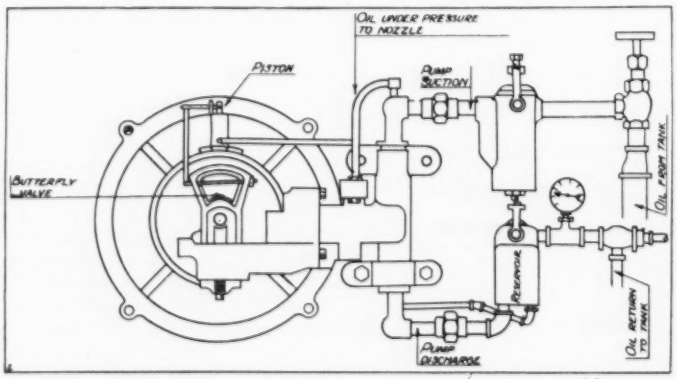


Fig. 2—Cross section through air duct, also showing scheme of pipe connections

QUIT SMASHING OFF THOSE FROZEN FITTINGS

SAVE all the fittings on that next tear-down job—no matter how tight they are. Even the ones that are "frozen solid" have to come off when you put a RIDGID Super-Six on them. No argument—no hesitation. When this powerful RIDGID settles its fighting jaws around their necks, they come loose.

This simply means that one good tear-down job will give you enough salvaged fittings to pay for your Super-Six. It's a rare pipe tool that pays for itself like that.

But that's not all. This RIDGID Super-Six is a bear for tightening—and needs only one man on the handle. He puts it on the pipe and "pumps" the fitting on, *without disturbing joints already tight in the line.*

Compound leverage gives the Super-Six its extraordinary power. Made in Super-Four also; jaw capacities 6″ and 4½″, respectively.

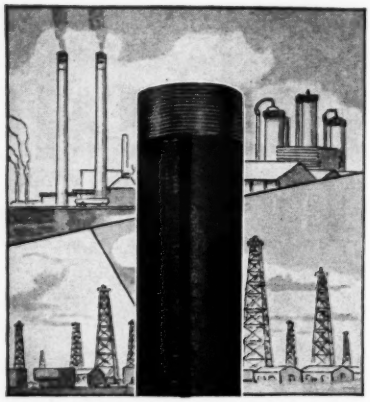
Do you know that regular RIDGID Wrenches, sizes 10″ and 14″, may be had with special rubber grips, in a variety of colors? Your Jobber has these grips for putting on RIDGID wrenches you already have. He has also RIDGID Super-Six Wrenches, and RIDGID Vises, Cutters and Threaders.

Every efficient kit needs one of each. See your jobber

THE RIDGE TOOL CO., Dept. DE, Elyria, Ohio

RIDGID PIPE TOOLS

Remember TONCAN FOR PERMANENCE

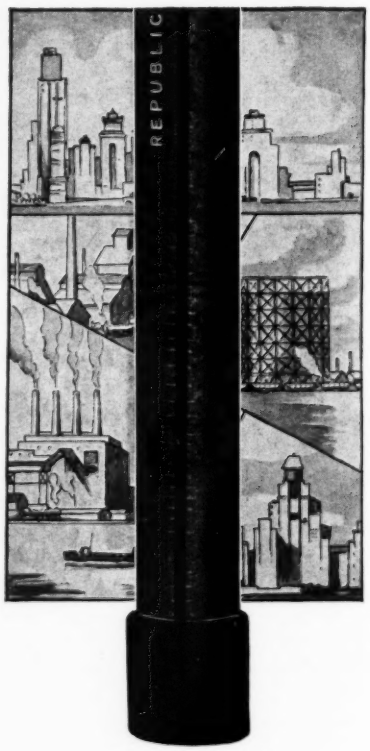


FOLLOW this prescription if you wish to avoid future worry about pipe. Make it your practice, particularly where service is severe, to specify Toncan Iron Pipe — the trouble-free pipe.

It begins to save trouble with its installation, for it is easy to thread or flange or bend. But the greatest benefit of Toncan Pipe can only be realized as the years go by without costly repairs and upkeep.

This alloy of copper, molybdenum and highly refined iron has an extraordinary resistance to the elements that relentlessly destroy most ferrous pipe materials. Toncan Iron is specifically manufactured to withstand the ravages of rust and corrosion. Use Toncan Iron Pipe for Permanence.

Send for the "Toncan Book." It contains full details of the story of Toncan Iron Pipe, its metallurgy, manufacture, tests and uses.



As protection to you we mark it BLUE.

REG. U.S. PAT. OFF.
TONCAN
COPPER MO·LYB·DEN·UM
IRON PIPE

REPUBLIC STEEL CORPORATION

GENERAL OFFICES YOUNGSTOWN, OHIO

Birmingham Boston Buffalo Chicago Cincinnati Cleveland Dallas
Denver Detroit El Paso Indianapolis Milwaukee Los Angeles New York
Philadelphia Pittsburgh San Francisco Seattle St. Paul St. Louis

a typical automatic burner installation will help to show how the trouble was overcome. The thermostat calling for heat closes the electric circuit which starts the motor and energizes the magnetic oil valve. Immediately, therefore, the fan, pump, and oil nozzle begin to operate and fuel is supplied to the nozzle. Instantly there occurs a rush of air and atomized oil into the combustion chamber; ignition follows with the consequent expansion of the gases of combustion. In the ordinary case the normal draw of even a cold chimney furnishes sufficient draft to carry off easily all products of combustion. In this case, however, a good draw was not obtained until the increased temperature created it.

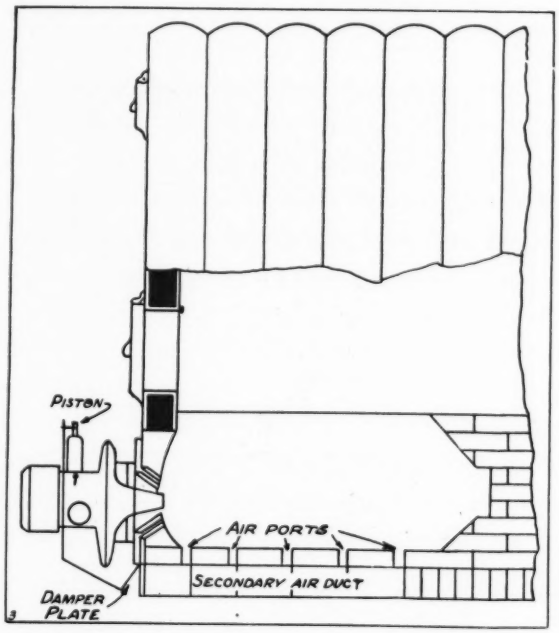


Fig. 3—Secondary air, introduced through checker-work bottom, is also controlled by piston and damper

A few more details will complete the analysis. Upon the opening of the magnetic valve, oil is supplied to the nozzle from a small reservoir. The pump thereafter maintains a pressure of about ten pounds on the reservoir, whatever oil being in excess of that required to fill the reservoir passing back to the tank through the return. The fan, on the other hand, is furnishing air at a constant rate, and if the air supply were diminished by a permanent adjustment to the point which eliminated the back pressure in the firebox, then there would be insufficient air for proper combustion after the normal draft was obtained.

Hence, it will be seen, the correct solution involved the automatic regulation of air so as to provide only the volume which could be handled by a cold chimney on starting and then to supply the volume needed for combustion after ignition has occurred and the chimney draws freely.

A mechanism of air control for this purpose was developed using a piston operated by the pressure of the fuel in the reservoir. Referring to Fig. 1, it will be seen that the fan draws its air through the motor frame, and that the air is led into the fan blades through a passage just above the gear housing. In this passage is located a butterfly valve. The lever stem of the butterfly connects by a rod to the piston mechanism. As the oil pressure builds up in the reservoir, a connecting tube communicates the pressure to oil beneath the piston; the piston is forced up and then opens the butterfly valve in the air supply.

Under this arrangement, the sequence of operation is as follows: Upon the starting of the motor and opening of the magnetic valve, fuel is supplied to the nozzle, is atomized and mixed with a reduced volume of air. Ignition now takes place, the stack readily carrying off all smoke and gases. As the fire continues to burn, the pump establishes its vacuum, draws up oil and gradually builds up pressure on the oil reservoir. As the pressure rises, the butterfly valve opens and admits more air to the flame, thus bringing the air-oil ratio to the proper condition for good combustion. The total elapsed time from the first closing of the thermostat switch to the full opening of the air valve is approximately one minute.

About fifty per cent of the air required for combustion is taken in through the burner as above described. This air is called the primary air. The balance of the air required for combustion is called the auxiliary or secondary air and is taken into the combustion chamber by natural draft below the burner and below a checkered fire tile floor. This is done to preheat the air and to distribute it where most needed (See Fig. 3). A hinged or balanced damper is placed over this opening and is also connected to the above piston air control by means of a rod or a chain and is likewise opened or closed with the change in oil pressure.

◆

Flange Bolts

The writer has found on several occasions that mechanics, in erecting both ammonia and steam piping where flanged fittings have been used, have used flange bolts that were not only of much smaller diameter than called for, but also in some instances the bolts were too short, allowing only from 30 to 50 per cent of the nut to be screwed on to the bolt after it was in position.

Bolts used on piping systems, particularly where pressures carried are high, as in the case of ammonia and carbon dioxide refrigerating plants, should be of the correct diameter. Bolts that are just small enough to pass through the bolt holes in the flanges should be used.

About a year ago, an accident occurred in an electric-driven ice plant of about 50 tons capacity in which the main discharge line opened up at a pair of flanges. This accident resulted in a loss of considerable ammonia and a shut-down of several hours. An investigation disclosed that the bolts used for this particular pair of flanges were much smaller in diameter than should have been used and, also, the material from which the bolts were made was of uncertain quality. Being in need of a set of bolts quickly, when the pipe line was installed, a set unsuited for the service was used. This experience should serve as an example in selecting flange bolts.

Solved! 13 Plumbing Problems

Two years of study and laboratory tests on the part of Master Plumbers have made available this material

By
W. S. L. CLEVERDON

AUTHORITIES seem to agree that there is very little danger of any disease being transmitted by sewer air, it being pretty well established that all water-borne diseases must be transmitted by the infected water coming in contact with the mouth of the unfortunate person.

However, these facts remain: The foul air from sewage is unhealthy; sulphurated hydrogen, ammonia, carbon dioxide and other compounds have a bad effect on health and while they transmit no particular disease, they weaken the vitality of a person so that they have little resistance to any disease.

While it is almost impossible for sewage to come in contact with a person after it has entered the soil or drain lines, it is quite possible for vermin to enter imperfect soil or drain lines especially when not properly trapped or vented and then travel over food, thus infecting it with any of the water-borne diseases such as typhoid, cholera, dysentery and diarrhea.

The necessity for properly protecting the trap seal is therefore apparent in view of the slight reduction in atmospheric pressure necessary in the drainage line to cause the trap to siphon. Table I gives further results of siphoning traps under different conditions.

In this case a 2-in. trap discharged through a 2-in. branch into a 2-in. stack. The stack was 17 ft. long and the trap branch connected at a point 2 ft. above the outlet.

Note the changes in pressure from negative to positive, first siphoning and then tending to reseal the trap when the stack discharged against a head of 1 ft. This is especially noticeable where the venting is insufficient.

Manometer readings were also taken showing that back pressures were only encountered at the base of the stack and the greatest negative pressures close to the discharging branch.

This back pressure extends upward as the volumes and velocities increase; but does not amount to much when plumbing is properly vented. No back pressure was encountered when the stack discharged directly into the atmosphere.

Where the trap was amply vented there was no change in the seal due to back pressure or reduction in atmospheric pressure.

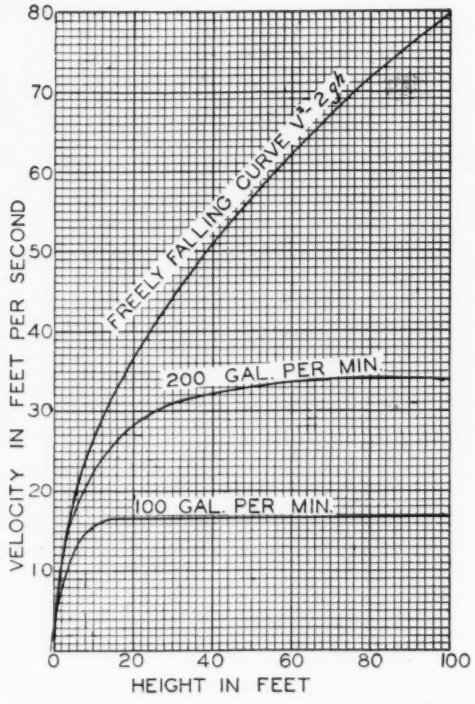
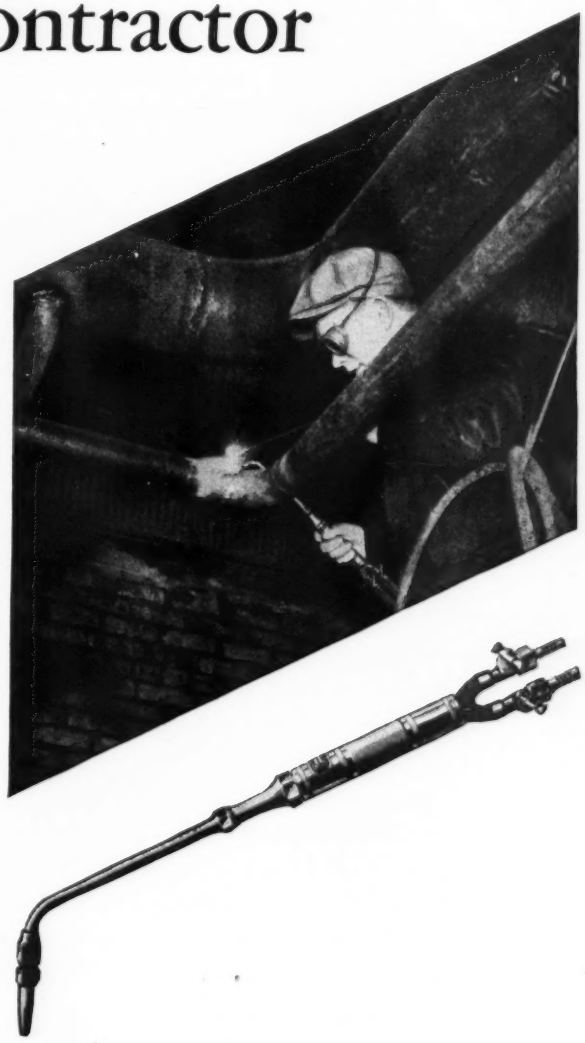


Fig. 1—Curves showing velocity of water falling in a 3-inch stack and of a freely falling body in vacuum

This installment concludes the series of articles that have appeared in recent issues under this same title

More Profits for the Plumbing and Heating Contractor

The trend toward modern oxwelded design is a distinct advantage and a real opportunity for the Plumbing and Heating Contractor equipped to do oxwelding.



PREST-O-WELD welding and cutting outfits offer you the kind of equipment that will meet the requirements of the most exacting oxwelding specifications.

Your jobs require the making of bends, making of fittings, cutting of pipe into suitable lengths, welding of pipe into sections, and the use of tie-in joints . . . all of which are efficiently produced with a Prest-O-Weld outfit. The saving in materials, pipe, fittings and time means added profits to you.

AND . . . you can easily afford to be up to date with Prest-O-Weld equipment...It is moderately priced.

PREST-O-WELD

WELDING AND CUTTING APPARATUS

Sold by Jobbers Everywhere

OXWELD ACETYLENE COMPANY

Unit of Union Carbide and Carbon Corporation

NEW YORK

SALES OFFICES IN PRINCIPAL CITIES

IN CANADA: DOMINION OXYGEN CO., LTD., TORONTO

TECHNICAL PUBLICITY DEPT. - Room 1201
205 East 42nd Street - New York, N. Y.

Please send me your new booklet "Oxwelded Piping"

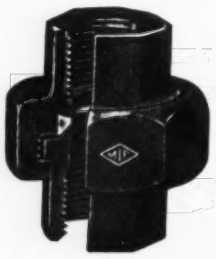
Name.....

Company.....*Position*.....

Street Address.....

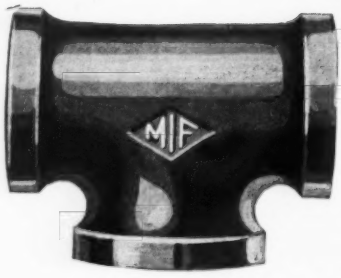
City.....*State*.....

DE-11-1-30



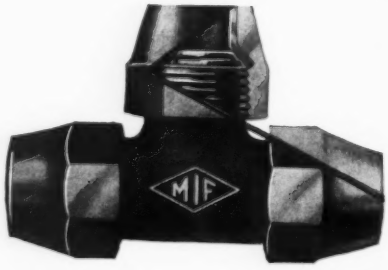
BRANFORD UNIONS

Branford Brass to Iron Seat Unions either in the Junior or Regular size, meet with standard specifications everywhere. They are sturdy and leakproof, easy to install and priced right. » »



MALLEABLE IRON FITTINGS

M. I. F. Fittings are made of the finest malleable iron. Rigid inspection makes them uniform in quality. Careful machining makes them faster to use. Nearly all jobbers carry them in stock. »



COPPER TUBE FITTINGS

The latest addition to the M. I. F. Line is the Copper Tube Fitting. Its Two Points of contact in the double 45° seat make it leak and shock proof. Made in all working sizes up to 2″. »

MALLEABLE IRON FITTINGS COMPANY

BRANFORD » CONN.

The velocities given in the table are liable to take place in any stack.

The Hoover code states that in a fall of 20 ft. a velocity of 29 ft. per second was produced and a velocity of 30 ft. per second in a fall of 100 ft. In our experiments 90 deg. fittings were used. It is possible that our velocities and volumes would have been doubled had 45 deg. fittings been used. This is indicated by the results given in the Hoover code.

If we had used a larger stack our velocities would have been greater for greater discharges but in all probability would have been less for our discharges. Our velocities would have been much less if our volumes had been reduced as the pipe would not flow full, but the discharge would have clung to the side of the pipe where frictional losses are greater.

The table shows that where there was sufficient venting to prevent siphoning, it was also sufficient to prevent back pressure.

That there was very little back pressure in the stack was indicated by the facts that the stack which extended 12 in. above the branch to the supply tank never overflowed, considerable noise was made by the air rushing down the stack from the upper open end, and very little back pressure was noted at the traps.

All available head was taken up by friction and velocity. Our maximum velocity head is only 2.7 ft. The remaining 14.3 ft. overcame friction.

The Hoover code suggests that we take as our limit 1 in. of water as our back pressure and reduction in atmospheric pressure.

From the tables one can readily see what might happen due to closure of stack vent, submergence of the outlet or insufficient trap venting.

Results of Experiments on Non-Siphoning Trap

These tests were made by connecting the trap to a vertical 2 in. line 17 ft. long with no vents. The water entered the vertical line through a 2-in. T-branch with a pet-cock, immediately below it, a second pet-cock 8 ft. below the first and a third 8 ft. below the second. Readings were taken with a mercurial manometer at each pet-cock as shown in Table II.

The readings showed that the greatest reduction in atmospheric pressure took place immediately below the discharging branch and that least reduction at the lowest pet-cock.

The velocities ranged from 3 to 14 ft. per second.

Stacks

There are many difficulties in determining the carrying capacities of stacks some of which are summarized in the question: "Just what are the conditions of flow when the stack is not flowing full?" There seem to be little data on the subject of velocities in stacks. When properly vented, quantities of air enter the stack and flow with the sewage taking up considerable pipe space. When not properly vented, negative and positive pressures occur either increasing or decreasing velocities. Where branches or connections are made from vertical to horizontal piping and vice versa, velocities and the consequent discharges may be greatly increased by using 45 deg. Y's or 45 deg. elbows instead of T's and short radii 90 deg. elbows. Two branches opposite each other discharging at the same time greatly interfere with flow especially if T's are used.

Conditions Governing Velocity

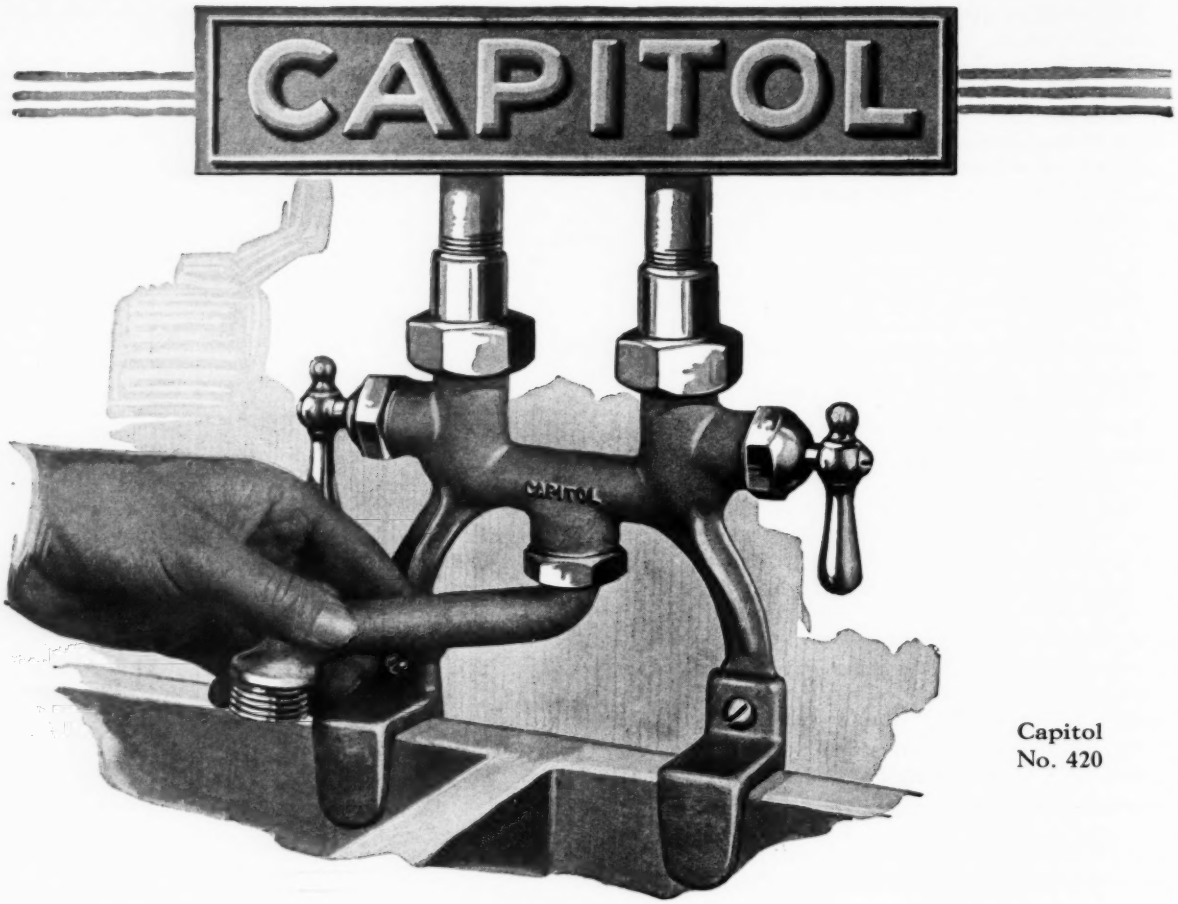
In general it may be said that velocities increase with the size of stack, with the volume of sewage, with the smoothness of the interior of the pipe and with the use of as few fittings as possible.

Fig. 1 and the quotations following are taken from the Hoover code and are the best data the writer has been able to obtain on this subject.

Table I

		Wt. of Water Lb.	Time of Run	Size of Piping	Velocity Ft. per Sec.	Gals. per Min.	Trap Diam.	Trap Seal Depth	Remarks
Discharged into tank with 1 foot back pressure	No vents used.	368	0′-30″	2″	9	89	2″	5″	Seal broken. No tendency to reseal due to back pressure.
	"	397	0′-20″	2″	14.6	143	2″	5″	Seal broken and slightly resealed due to back pressure (reseal ⅛″ only).
	"	397	0′-20″	2″	14.6	143	2″	5″	Same as run 2.
	Stack vented at top, no trap vents	349	0′-32″	2″	6	79	2″	5″	Seal reduced ½, back back pressure then caused water to slightly flow out of trap.
	"	390	0′-25″	2″	11.5	113	2″	5″	Seal broken. Big noise caused by water and air rushing down stack.
	"	372	0′-22″	2″	12.4	122	2″	5″	Seal broken and back pressure noticed but did not reseal trap.
	Stack and trap vented	357	0′-54″	2″	5	48	2″	5″	Seal not altered. Noise due to water and air rushing down stack.
	"	389	0′-23″	2″	12.4	123	2″	5″	Ditto
	Stack not vented.	393	0′-29″	2″	10	98	2″	5″	Seal not altered.
	Trap vented.	365	0′-25″	2″	10.8	106	2″	5″	Seal not altered. Very slight back pressure noted.
	"	400	0′-22″	2″	13.4	131	2″	5″	No change in seal.
Discharged into Atmosphere	No vents used.	393	0′-29″	2″	10	98	2″	5″	Seal broken. No back pressure.
	"	365	0′-25″	2″	10.8	106	2″	5″	Ditto
	"	400	0′-22″	2″	13.4	131	2″	5″	Ditto
	Stack vented. No trap vent	393	0′-29″	2″	10	98	2″	5″	Seal broken. Great—noise, water and air in stack.
	"	365	0′-25″	2″	10.8	106	2″	5″	Ditto
	Stack and trap vented.	393	0′-29″	2″	10	98	2″	5″	No change in seal. Great noise, water and air in stack.
	"	400	0′-22″	2″	13.4	131	2″	5″	Ditto

"The fact that the air resistance encountered in an actual plumbing installation, due to the influence of the horizontal house drain, was not present in the determinations from which the curves were plotted, should be noted. Evidently the air resistance offered in a partially closed system, such as presented by a complete plumbing installation, increases more rapidly than the square of the velocity. Therefore, the velocity not only approaches the maximum more rapidly than indicated by the curves, but probably reaches an absolute maximum within the distances indicating approximate maximum velocities in the curves. There have been some indications of a slight decrease in velocity toward the base when measurements were made in the open end of a long sweep one-



Capitol
No. 420

Combination Laundry Faucet

Here's a faucet made by one of the pioneer manufacturers of combination fixtures, the construction of which has recently been modified so as to allow for adjustment at the point where tub clamp fastens to faucet. The tub clamps are reversible. The unions are of heavy ball plated pattern absolutely trouble proof. The spout is long and will throw water well out into tub. *Also made extra long for three part tubs.*

The Capitol No. 420 is made entirely of brass and is rough nickel plated all over. An article which is finished a bit better than would seem necessary and

MORE ATTRACTIVELY
PRICED THAN EVER!

Wholesalers:

Before placing another order for Combination Laundry Faucets be sure to ask for quotation on this Capitol No. 420—you'll find a pleasant surprise awaiting you.

Bohn Aluminum & Brass Corporation

CAPITOL BRASS DIVISION

MANUFACTURERS OF BRASS VALVES, BOILER TRIMMINGS AND PLUMBERS' BRASS GOODS

DETROIT~MICHIGAN

fourth bend set on the lower end of the vertical stack. A marked decrease in velocity could be produced only with the base of the system completely closed to the passage of air. This is again getting away from practical conditions, for, if the house drain may become closed to the passage of air, the fixture inlets and vents offer an outlet with a relatively small increase in pressure. Even the small increase in pressure necessary to produce

Table II

Results of Experiments on a Non-Siphoning Trap

Run	Velocity Ft. per Sec.	Position of* Manometer	Supply Valve Open	Mercury Manometer Reading Ins.	
1	8	A	1/8	1 1/2	Trap siphoned and resealed.
2	4	A	1/4	1/2	Water in trap fluctuates.
3	6	A	1/4	2	Trap siphoned and resealed.
4	4	B	1/4	1/4	Water in trap fluctuates.
5	8	B	1/4	1	Siphoned but resealed.
6	14	B	3/8	3 1/4	Siphoned but resealed.
7	4	C	1/4	1/4	Water in trap fluctuates.
8	8	C	1/4	3/4	Seal broken, resealed.
9	14	C	3/8	1/2	Seal broken, resealed.

*Position A just below branch from top.
Position B just 8 ft. below branch from top.
Position C just 17 ft. below branch from top.

circulation of air through vents will have some effect on the kind described.

Heights of Stacks and Velocities

"It therefore seems reasonable to assume that the approximate maximum velocity of 32.8 ft. per second attained in a 45 ft. length of 3-in. stack open at the top and bottom will not be exceeded in a 3-in. soil or waste stack of any height in the partially closed system presented by a complete plumbing installation.

"The only apparent application of this data is on the point of limitation of height of stack of given diameter. For example, if a 3 in. stack in which a height to the highest group of fixtures of 20 ft. is permitted, there is slight reason, on the grounds of increased velocity, for placing any limitation on the height allowed. The velocity attained in a fall of 20 ft. in a 3 in. stack open at both ends is 29 ft. per second. That attained in a fall of 100 ft. will be 34.2 ft. per second.

"The maximum velocity attained in a given vertical stack is apparently a linear function of the volume rate of flow; that is, the maximum velocity is proportional to the volume rate of flow. Evidently this relation holds only with volume rates of flow between that which will completely cover the wall of the pipe and that which continuously completely fills the pipe. Below the former limit the flow becomes a trickle on the wall of the pipe and the resistance is relatively greater. Above the latter limit a static head is developed in the pipe and the equation no longer holds.

"No doubt the velocities could be reduced by the introduction of devices, such as spiral sections or fittings, that would hold the water on the wall of the pipe. There has been no time or opportunity offered yet for investigation of such devices. The effects of such fittings on the system in other respects are problematical, and we offer no opinion as to general effects of special fittings without a thorough investigation by experiment and test."

The "critical point" in a stack is where the vertical pipe joins the horizontal pipe. It has been suggested that if the connecting pipe at this point be so selected that it will deliver peak load of sewage without producing a back pressure in excess of a head of 1 in. of water and that if the vertical piping be of this same size it will be of sufficient capacity.

Vents

The purpose of vents is: to prevent a reduction of, or addition to, the atmospheric pressure in the drainage piping, thereby preventing siphoning of traps or back pressure from forcing sewage back into fixtures; to remove all corrosive or other bad gases from the drainage pipes, thereby reducing corrosion and preventing foul air from reaching the occupants of the rooms in which the fixtures are located.

The amount of air required from the vent is equal to the amount of water removed and must be delivered at the same rate so that there will not be a positive or negative head greater than 1 in. of water. This means that the conditions are about the same as when the stack is open top and bottom.

On account of the frictional losses of air being so much less than those of water, it is economical to use higher velocities for the air with the consequent requirement of smaller piping.

A vent which is sufficient to prevent a reduction in atmospheric pressures is sufficient to prevent back pressure.

With vents arranged as shown in Fig. 3 (See page 72, Oct. 4 issue) having the top of the soil line capped and no vents on the traps, each trap siphoned immediately.

With the top of the soil line open and no vents at the traps, the seal was about one-half reduced but not broken.

With the top of the soil line open and each trap vented, not the slightest movement of water in the trap was noted.

With the top of the soil line capped and the trap vented there was very little loss in seal.

Conclusion

For the protection of the individual trap the individual trap vent is of more importance than the stack vent especially in long stacks.

The back pressures were found to be greatest at the "critical point," where the vertical pipe joined the horizontal, and to reduce and become negative as the pressures were taken traveling upward in the stack. The greatest negative pressure was encountered just below the branch discharging into the stack.

◆

Cutting Pipe

One of the harmful practices of some pipe erectors is that of using improper pipe tools when fabricating pipe work. For example, some pipe fitters seldom use a pipe reamer for removing burrs formed by pipe cutting tools. This is particularly unfortunate in the case of small diameter pipe, since it often happens that pipe ends are greatly reduced in area by such burrs or collars.

It is not difficult to visualize the loss in carrying capacity of, say, a half-inch or three-fourths-inch pipe line of several hundred feet where the ends of each pipe section are reduced in area by a heavy internal ring.

Latest Venting Practices Revealed in Code Study

You frequently use circuit and loop vents but many codes ignore this type of venting. The following study of practices in Louisiana, Maine, Maryland, Massachusetts and Michigan, will interest the contractor no matter where his business is located

By R. M. STARBUCK, JR.

IN THE third column in the tabulation, "Venting of Water Closets," there is one feature that should be considered especially. Several plumbing codes which do not require the venting of water closets that are of siphon or siphon-jet type were found. Some of these cities to be found in this present tabulation are Jackson, Michigan, and Cumberland, Md. Just why this particular type of water closet is less subject to siphonage of its trap seal from the passage of waste down the stack to which it connects, is not understood.

It would be interesting to know what the argument back of such a law as mentioned above may be.

Circuit and Loop Vents

"Circuit and Loop Vents" is the subject taken up in the fourth column.

This type of venting is very generally considered as a standard method, as standard as continuous venting. Nevertheless, many plumbing codes make no mention of circuit or loop venting. It is presumed however, that there are comparatively few cities which do not allow this type of venting to be installed, even though mention of the fact does not appear in the plumbing code.

As the Hoover code continues to be adopted by an increasing number of cities, it is to be expected that the Hoover recommendation concerning circuit or loop vents will be largely followed, either in its original form or in a modified form. This will appear from a study of this part of the tabulation.

The Hoover recommendation is as follows: "A circuit or loop vent will be permitted as follows: A branch soil or waste pipe to which two and not more than eight water closets, pedestal urinals, trap standard slop sinks or shower stalls are connected in series may be vented by a circuit or loop vent, which shall be taken off in front of the last fixture connection. Where fixtures discharge above such branch, each branch shall be provided with a relief vent one-half the diameter of the soil or waste stack, taken off in front of the first fixture connection."

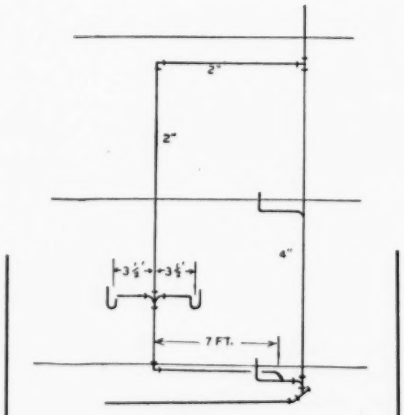


Fig. 1

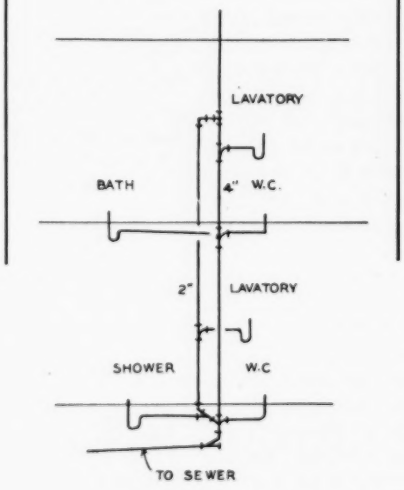


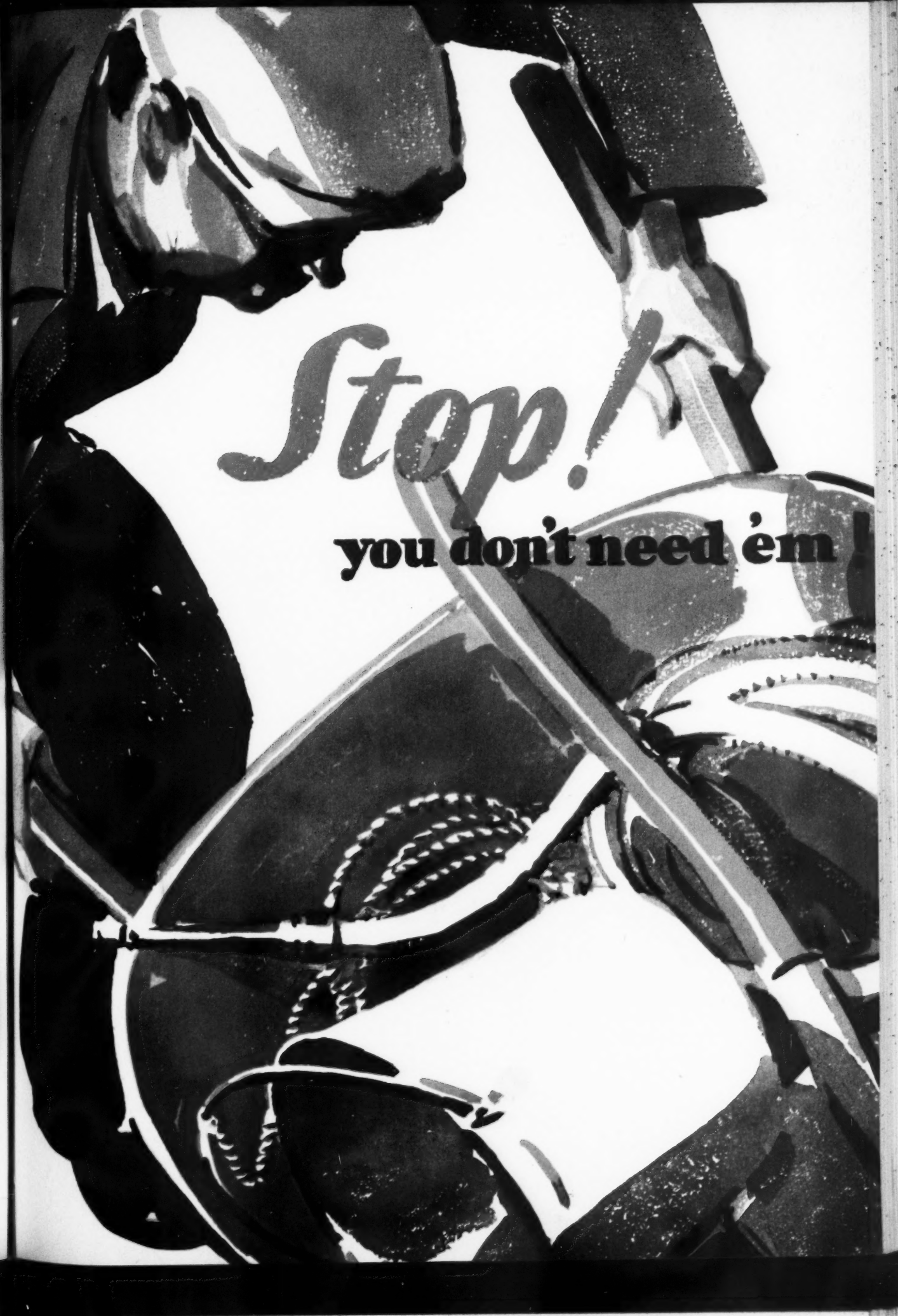
Fig. 2

Pilot Drawing for Indiana

In Fig. 3 is reproduced the authorized pilot drawing of the State of Indiana. The Indiana State plumbing code is the Hoover code with slight modifications. Therefore this pilot drawing will serve to show not only the plumbing practice of that particular state, but it also shows the general practice according to the Hoover code recommendations.

Of special interest in this present connection is the fact that Fig. 3 shows the use of relief vents in connection with two or more floors of circuit or loop venting.

A study of the column on circuit venting will show that, whereas the Hoover practice names only fixtures having floor outlets as those to which circuit and loop vents may be applied, and whereas other cities limit their use to water closets only, there are other plumbing codes which make a


Stop!
you don't need 'em

A Jennings Sewage Pump *is installed on the floor* outside the pit

You can forget *boots, pails, and shovels* when inspecting it

PUMP, driving motor, and controls of the Jennings Suction Sewage Pump are installed out on the floor above the pit. They are always accessible. Only the suction pipe is submerged.

No bailing or digging is necessary to get at a Jennings. It can be inspected or taken apart for cleaning without opening the pit. Unscrewing a few bolts and removing the pump head gives access to the interior. The impeller is removable without disturbing packing, piping, or shaft alignment.

Jennings Suction Sewage Pumps are furnished in a series of sizes with capacities and heads to meet the usual requirements. All sizes are fitted with efficient, non-clog impellers. No screens are required.

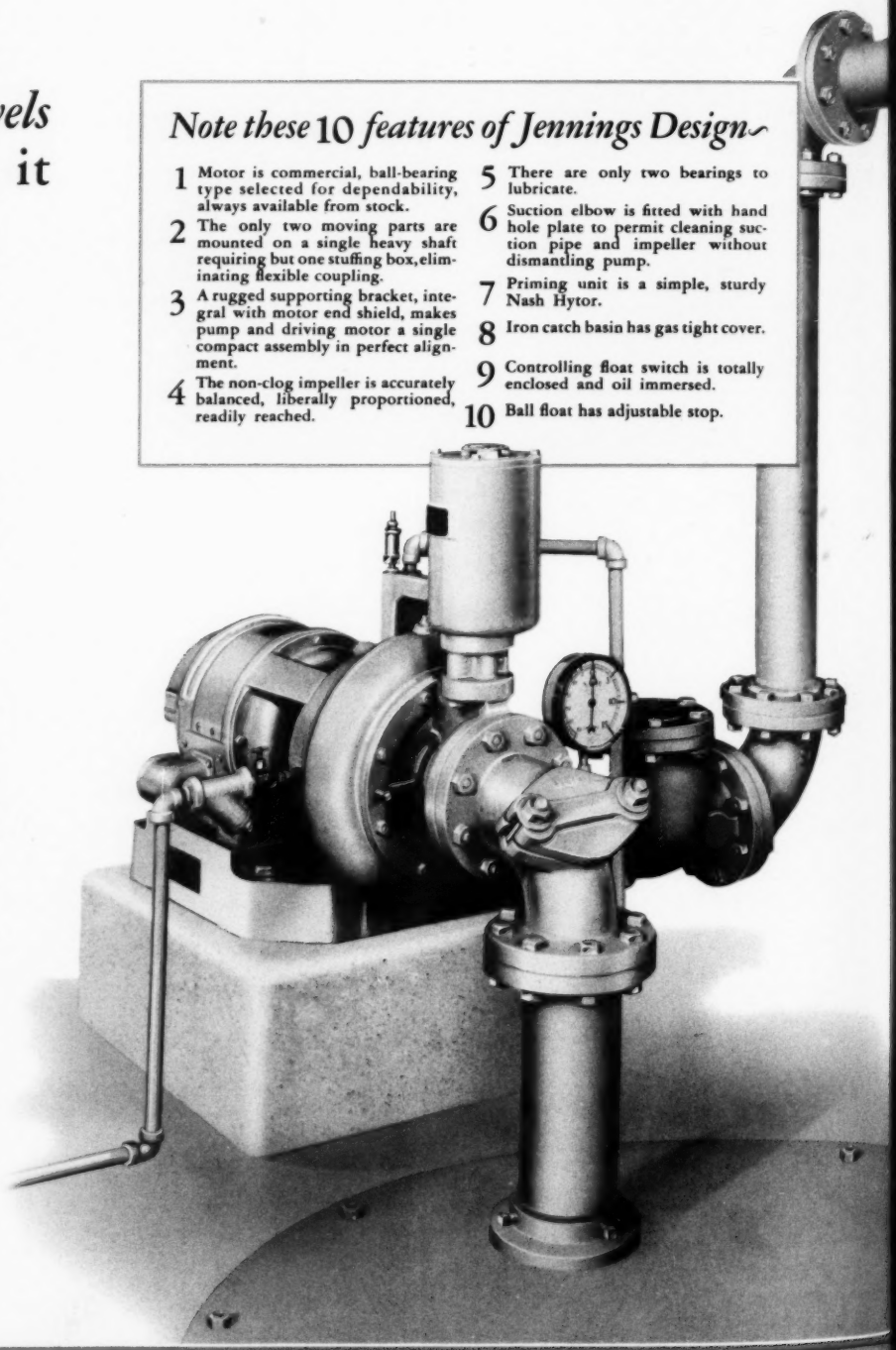
Write for Bulletins 113 and 124.

NASH ENGINEERING COMPANY
33 Wilson Road, South Norwalk, Conn.

Jennings
SUCTION
SEWAGE
Pumps

Note these 10 *features of Jennings Design*

1. Motor is commercial, ball-bearing type selected for dependability, always available from stock.
2. The only two moving parts are mounted on a single heavy shaft requiring but one stuffing box, eliminating flexible coupling.
3. A rugged supporting bracket, integral with motor end shield, makes pump and driving motor a single compact assembly in perfect alignment.
4. The non-clog impeller is accurately balanced, liberally proportioned, readily reached.
5. There are only two bearings to lubricate.
6. Suction elbow is fitted with hand hole plate to permit cleaning suction pipe and impeller without dismantling pump.
7. Priming unit is a simple, sturdy Nash Hytor.
8. Iron catch basin has gas tight cover.
9. Controlling float switch is totally enclosed and oil immersed.
10. Ball float has adjustable stop.



City	General Vent Requirements	Vents not Required	Venting of Water Closets	Circuit and Loop Vents	Wet Vents	Special Vent Requirements
Shreveport	Continuous vents required. Vent pipes not over 3 ft. from trap.			Where lavatories etc. have circuit vent, a full size relief vent required for every 8 fixtures.		Any 10 ft. vertical branch or 20 ft. lateral branch, must pass full size through roof, or connect with main vent above all other fixtures.
Maine						
Biddeford	Vent pipes not over 10 ft. from trap.			Allowed for 2 and not over 8 W. C.'s, pedestal urinals, slop sinks or showers if taken off in front of last fixture. Relief vents required.		Main vents shall connect with main soil stack below lowest fixture. In all buildings 4 floors or more, where fixtures are on 4th floor, every fixture trap shall be vented.
Lewiston	Any fixture 10 ft. or more from stack shall have continuous vent through roof or into stack above highest fixture.			A battery of 5 or more W. C.'s 10 ft. or more from stack, shall have continuous vent not less than 4" through roof or connected to stack above highest fixture.		
Portland	All traps requiring it, shall have a vent or some appliance approved by Board.				Wet vents prohibited	
Maryland						
Baltimore	Continuous vents required. Vent intersections shall be at least 3½ ft. from floor.	Fixtures on top floor within 5 ft. of stack, require no vent. When only one fixture on a stack it needs no vent if within 5 ft. of it. The 3 bath room fixtures may have a 2" circuit vent without separate vents.		Circuit type of venting may be used for batteries of all fixtures within 3 ft. of horizontal line.		Vertical vent lines 20 ft. or longer shall connect at bottom with stack with a fixture connection to wash out rust and scale.
Cumberland			A siphon W. C. within 3 ft. of stack requires no vent.			For a fixture over 7 ft. from main vent, a separate vent shall be carried through roof.
Hagerstown	Vent intersections not less than 34" from floor. Vent pipes not over 2 ft. from trap.	Fixtures on top floor within 5 ft. of stack, require no vent.		Circuit type of venting may be used for batteries of all fixtures within 2 ft. of horizontal line.		Vertical vent lines 20 ft. or longer shall connect at bottom with stack with a fixture connection to wash out rust and scale.
Massachusetts						
Barnstable	Continuous vents required. Vent pipes not over 2 ft. from trap. Drum traps may be 5 ft. from vent.			Allowed on batteries of W. C.'s.		Lead vents to be used only for short connections and when exposed to view.
Belmont	Unvented drum of non-siphon traps used.	W. C.'s within 4 ft. of main stack require no vent.		Allowed on batteries of W. C.'s.		Bow vents connected to horisontal below top of fixture not allowed.
Brookline	Continuous vents required. Vent pipe not over 18" from trap.	On siphon W. C.'s over 6 ft. above base of stack, if branch not over 5 ft. long.	W. C. vent to be 3" if over 30 ft. long.	Allowed for batteries of 2-4 fixtures. If over 4 a revent for each 4 fixtures required. Loop vent allowed for 3 bath room fixtures within 10 ft. of each other and W. C. not over 5 ft.		Bow venting not allowed.
Concord	Continuous vents required.			Allowed on batteries of W. C.'s.		Bow venting not allowed.
Everett	Continuous vents required.		W. C. vent to be 3" if over 30 ft. long.	Allowed on batteries of W. C.'s.		Bow venting not allowed. All concealed inaccessible vents to be C. I.
Falmouth	Continuous vents required. Straps not over 2 ft. from vent; 5 ft. for drum traps.			Allowed on batteries of W. C.'s.		
Framingham	Continuous vents required.	On a lower W. C. if no waste larger than 1½" enters above and W. C. is within 30" of stack.	W. C. vent to be 3" if over 30 ft. long.			Bow venting only on special permit when run above fixture without being trapped. Galvanized vents limited to 15 ft.
Haverhill	A trap shall be vented if in the opinion of the inspector it is liable to siphonage.					
Holyoke	A trap shall be vented when liable to siphonage.		A W. C. over 12 ft. from main drain or stack must have 2" vent.			
Lowell	Continuous vents required. Vent intersections above highest fixture of group.		W. C. vents shall be C. I.	Allowed on batteries of all fixtures.		Bow venting not allowed.
Lynn	Continuous vents required.				Not allowed	Bow venting not allowed. Lead vents not to be concealed in partitions.
New Bedford	Continuous vents required. Vent pipe not over 18" from trap.	Sink and W. C. may omit vent if top fixtures. 1 bath and 1 W. C. may enter Estabrook fitting without vent if no other fixture than sink or lavatory above.	W. C. vent to be 3" if over 40 ft. long.		Bath tub vent may be omitted if not over 2 ft. from lavatory vent.	Lead vents used only for exposed short connections. Bow venting not allowed.
Newton	Continuous vents required.	For top fixture if within 2 ft. of stack and entrance to stack not over 9" below seal.		Not allowed.		Bow venting not allowed.
Pittsfield	Unvented non-siphon traps used.	Unless trap is over 14 ft. from stack.				
Quincy	Continuous vents required. Vent pipe not over 2 ft. from vent.			Allowed on batteries of W. C.'s.		

City	General Vent Requirements	Vents not Required	Venting of Water Closets	Circuit and Loop Vents	Wet Vents	Special Vent Requirements
Revere	Continuous vents required	For top fixture if within 2 ft. of stack and entrance to stack not over 12" below seal	W. C. vent to be 3" if over 30 ft. long	Required for sink and wash trays where possible, and of C. I. allowed on batteries of W. C.'s		Bow venting not allowed. Lead vents not to be concealed in partitions.
Salem	Continuous vents required. Vent pipe not over 2 ft. from trap; round traps 5 ft.	For top W. C. and 1 drum trap on fixtures where there is no W. C. above, and drum trap is used				Lead vents used only for exposed short connections.
Saugus	S traps vented within 6" of crown; drum traps from side of trap, or within 6" of trap	Top fixture not vented if drum trap within 2 ft. of stack				Bow venting not allowed.
Springfield	Continuous vents required. Vent pipe not over 6 ft. from trap		W. C. vent to be 3" if over 40 ft. long. W. C.'s over 8 ft. from stack shall have separate vent	Allowed for batteries of W. C.'s or lavatories. See Text. Relief vents required.	Allowed except for sinks	All non-siphon traps over 12 ft. from stack shall have special vent.
Swampscott	Vents shall connect to crown of trap or to top of Y, not over 18" from trap		W. C. vent to be 3" if over 30 ft. long	Allowed for battery of 4 W. C.'s. If over 4, a re-vent required for each additional 4.		Bow venting not allowed.
Waltham	Continuous vents required	For top floor fixtures within 5 ft. of stack		Allowed for 2 to 8 W. C.'s, pedestal urinals, slop sinks or showers if taken off in front of last fixture. Relief vents required		
Woburn	Continuous vents required. Vent pipes not over 18" from trap	When sewer connections not available 2 sinks and 2 trays on same floor, 1 sink and 1 tray may enter under unvented drum trap	W. C. vent to be 3" if over 30 ft. long		Not allowed	Bow venting not allowed. Lead vents used only for exposed short connections.
Woods Hole	Continuous vents required. S traps not over 2 ft., and drum traps 5 ft. from vent			Allowed on batteries of W. C.'s		
Worcester	Continuous vents required. Vent pipes not over 3 ft. from trap	For top floor fixture				Branch vent for 2 fixtures other than W. C.'s shall be 2".
Michigan						
Battle Creek	Continuous vents required	Extensive vent omissions. See Text. Bath vent omitted if within 7 ft. of stack			Not allowed	Crown vents allowed only on old work.
Bay City	Fixtures over 15 ft. from 4" stack shall be vented	Basement fixtures over 8 and under 15 ft. from vent stack, not vented				Galvanized pipe required for vents
Birmingham	All fixtures over 8 ft. from stack must be re-vented				Not allowed	2 bath rooms or other fixtures, one above the other, on 1st and 2d floors must be re-vented or have a loop vent.
Coldwater	Venting implied but not definite					
Detroit	Continuous vents required	Extensive vent omissions. See Text		Allowed on batteries of all fixtures. See Text		
Flint	Continuous vents required	Top fixture within 8 ft. of stack requires no vent. Bath trap within 8 ft. of stack requires no vent	A W. C. pedestal urinal or slop sink over 8 ft. from stack shall be vented from the branch	Allowed on batteries of W. C.'s if within 8 ft. of soil line; must be taken in front of last fixture	Not allowed	No vent shall run horizontally over 20 ft.
Grand Rapids	Vents taken from crown of trap	Extensive vent omissions. See Text	See Text	Allowed on batteries of all fixtures. See Text		
Ironwood	Venting not mentioned					
Jackson	Continuous vents required	If within 5 ft. of stack, 2 lavatories or sinks on a 2" stack; 8 on a 3" stack, and 16 on a 4" stack, require no vents	3 W. C.'s on a 4" stack need not be vented	Allowed on batteries of W. C.'s if within 5 ft. of soil line	Sink or lavatory may enter vent of basement W. C.	Bath tubs within 8 ft. of stack, require no vent.
Kalamazoo	Continuous vents required. Vent intersections 12" above fixture	On non-siphon traps which are allowed on pantry and kitchen sinks, and fixtures within 10 ft. of circuit vent line		Allowed on batteries of W. C.'s and other fixtures within 5 ft. of soil line	On 2" vents	Lead pipe used only on short vent connections.
Lansing		On a fixture into stack where the total area of all branches above fixture not larger than area of stack, or where W. C. into stack not over 20 ft. above				
Muskegon Heights	Continuous vents required	Fixtures within 10 ft. of stack may have non-siphon traps. When 2 sinks are one above the other, the lower sink may have an unvented non-siphon trap		Allowed on groups of 3 or more fixtures	Not allowed	
Owosso				Allowed	Not allowed	Bath tubs within 11 ft. of stack require no vent.
Pontiac	2 bath rooms or other fixtures, one above the other, must be vented	W. C.'s not over 5 ft. from stack require no vent. Sinks with non-siphon traps need no vent if less than 12 ft. from stack; lavatory 7 ft., bath tub, 8 ft.			Not allowed	
Royal Oak	Continuous venting required. Top fixtures not over 10 ft. from stack require no vents.	If 2 ft. from stack, 2 lavatories or sinks on 2" stack, 8 on 3" or 16 on 4" stack, without venting		Allowed on batteries of W. C.'s within 8 ft. of line	Not allowed	No vent shall run horizontally over 20 ft. Bath drum trap within 8 ft. of stack, requires no vent.
Saginaw	Continuous vents required, unless non-siphon traps are used	On fixtures within 10 ft. limit having non-siphon traps	W. C.'s over 10 ft. from stack shall be vented			

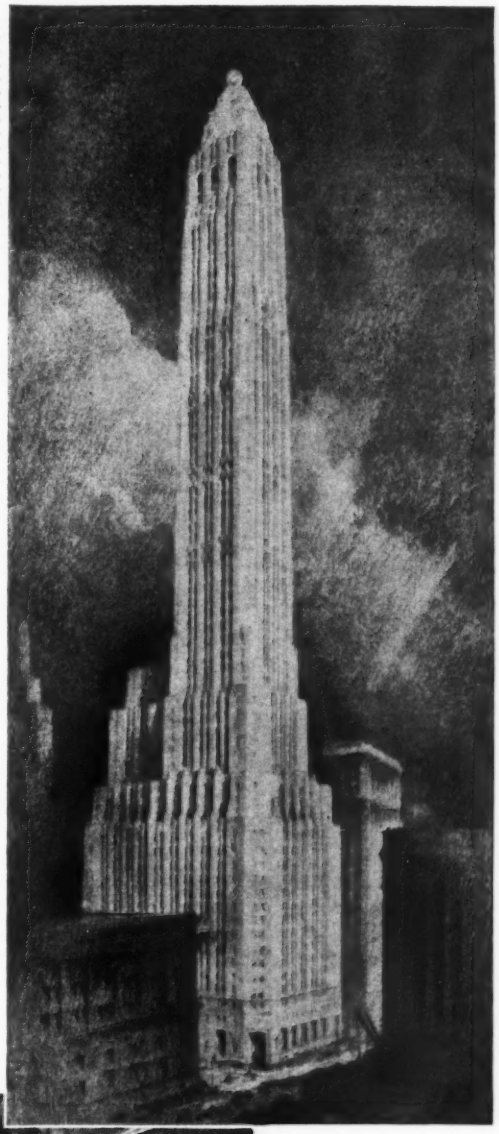
"YOUNGSTOWN" *in the Specifications Means Ease in the Installation . . .*

WHEN YOUNGSTOWN pipe is specified for the plumbing, heating, sprinkler or refrigerating systems of a building it is a specification that means an easy installation for the contractor. This life-time steel pipe, while tough and sturdy, is, nevertheless, easy to cut, thread and install on the job, making its installation both easier and faster—features which instantly appeal to contractors.

Coupled with this greater ease of installation is its long-lived endurance which insures a permanent piping job, benefiting the contractor, architect and owner alike.

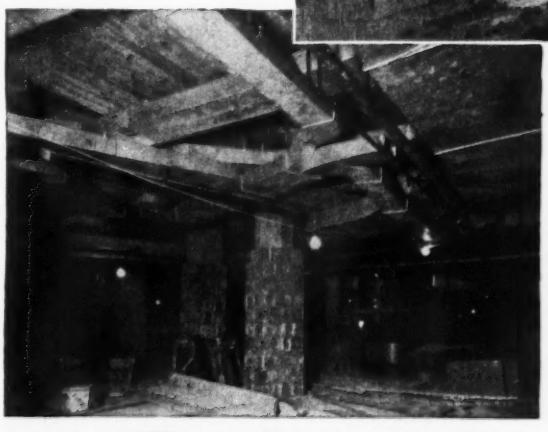
If you are not now using Youngstown steel pipe, try it in your next job. It is specified by leading architects, used by leading plumbing and heating contractors and stocked by leading jobbers and dealers from coast to coast.

The YOUNGSTOWN SHEET AND TUBE COMPANY
One of the oldest manufacturers of copper-steel, under the well-known and established trade name "Copperoid"
General Offices—YOUNGSTOWN, OHIO



DISTRICT SALES OFFICES

ATLANTA—Healey Bldg.
BOSTON—80 Federal St.
BUFFALO—Liberty Bank Bldg.
CHICAGO—Conway Bldg.
CINCINNATI—Union Trust Bldg.
CLEVELAND—Terminal Tower Bldg.
DALLAS—Magnolia Bldg.
DENVER—Continental Oil Bldg.
DETROIT—Fisher Bldg.
KANSAS CITY, MO.—Commerce Bldg.
MEMPHIS—P. O. Box 462
MINNEAPOLIS—Andrus Bldg.
NEW ORLEANS—Hibernia Bldg.
NEW YORK—30 Church St.
PHILADELPHIA—Franklin Trust Bldg.
PITTSBURGH—Oliver Bldg.
SAN FRANCISCO—
55 New Montgomery St.
SEATTLE—Central Bldg.
ST. LOUIS—525 Louderman Building
YOUNGSTOWN—Stambaugh Bldg.
LONDON REPRESENTATIVE—
The Youngstown Steel Products Co., Dashwood House, Old Broad St., London, E. C. England



The City Bank—Farmers Trust Bldg. New York City, where permanence is assured in the plumbing system by Youngstown Steel Pipe, and in the ventilating system by Youngstown Copperoid Steel Sheets.

Architects—CROSS & CROSS New York
Mechanical Engineer—CLYDE R. PLACE, New York
Builders—GEORGE A. FULLER CO., New York
Plumbing Contractor—J. L. MURPHY CO., New York
Ventilating Contractor—BAKER SMITH & CO., New York

YOUNGSTOWN

GALVANIZED SHEETS PROTECT SAVE WITH STEEL

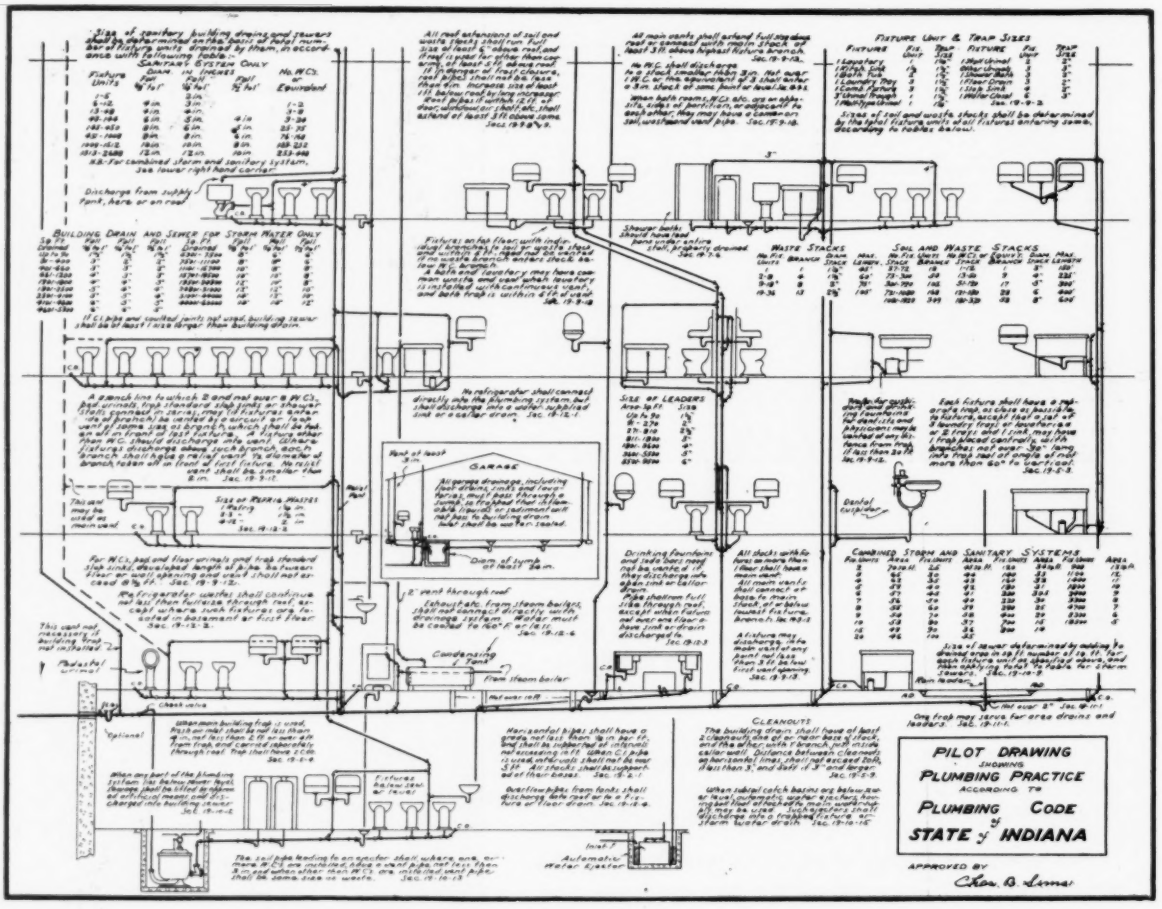


Fig. 3

broader application of the principle, and allow its use for all plumbing fixtures.

The plumbing code of Birmingham, Ala., has the following ordinance:

"Where a line of not more than eight fixtures are in a row and on the same floor and not more than 36 in. apart, or four bathtubs at 6 ft. apart from center to center (average) are to be repeated on one or more floors, reventing may be omitted by the continuing of the waste line full size through the roof, and a separate vent stack the same size as that of the soil stack through the roof, thereby forming an auxiliary vent, and connecting the branch lines into this vent on each floor not less than 12 in. above the floor line of the fixtures."

According to the foregoing, all batteries of fixtures may have circuit or loop vents, and this is proved by reference to Fig. 4, which is a reproduction of a drawing shown in the Birmingham code.

In Fig. 5 also are shown loop vent connections for various kinds of fixtures, as allowed by the city of West Palm Beach, Fla.

Miami, Florida, Thorough on Subject

Miami, Fla., goes into the subject of circuit and loop vents more definitely than most plumbing codes, in the following:

"A circuit or loop vent will be permitted as follows: A branch soil or waste pipe to which two and not more than twelve water closets or other fixtures as specified in the following table are connected in series may be vented by a circuit or loop vent, which shall be taken off in front of the last fixture connection. The following table shall be used to determine the maximum number

Loop or Circuit System Only

Size of Pipe	Number of Traps	Size of Vent Pipe
2 in. Waste	Six 1¼ in. traps or four 1½ in. traps other than sink traps. No urinal traps allowed	2 in.
3 in. Waste	Thirty waste fixture units other than urinal traps, or six urinal traps	3 in.
4 in. Soil	Twelve water closets and in addition 36 waste fixture units may waste into such soil pipe	4 in.

of fixture traps and the minimum size of soil, waste and vent pipes to be used in connection with the loop or circuit system of venting."

In the foregoing the term "waste fixture units" refers to the measurement of waste capacity as established in the Hoover scale.

Wet Vent Not Mentioned

It is surprising that the subject of wet vents finds its way into so few plumbing codes. Reference to the col-

HOTEL PIERRE, NEW YORK CITY
Architects: Schultze & Weaver
Consulting Engineer: Clyde R. Place
General Contractor: Geo. A. Fuller Co.
Heating Contractor: Baker, Smith & Co.
Plumbing Contractor: Jarcho Bros.

ONE OF FIFTH AVENUE'S FINEST

AGAIN uptown New York comes to the front with the erection of the palatial new Hotel Pierre. This ultra-fashionable hostelry . . . beautiful lines of Georgian architecture . . . slender, graceful facade of granite and cream-colored brick . . . rises forty stories above Fifth Avenue at Sixty-first Street.

The unique interior arrangement reveals how splendidly the architects and engineers have achieved spaciousness and distinction through modern design and construction. That extremely careful consideration was given to mechanical equipment, particularly the piping, is evidenced by the specification of NATIONAL for the major pipe tonnage. In addition to National Pipe for the heating lines, National Copper-Steel Pipe (especially resistant to atmospheric corrosion) was selected for the soil, waste, vent lines, rain leaders and fire lines.

Architects and engineers interested in the protection feature of copper-steel pipe should write for Bulletin No. 11, describing National Copper-Steel Pipe—

The Original Copper-Steel Pipe

NATIONAL TUBE COMPANY
Subsidiary of United States Steel Corporation
PITTSBURGH, PA.

U S STEEL

NATIONAL COPPER-STEEL PIPE

umn on "Wet Vents" will show that where wet vents are mentioned at all, in a majority of cases the mention simply prohibits them. It would seem that in many cases the type of wet vent that is prohibited is not the

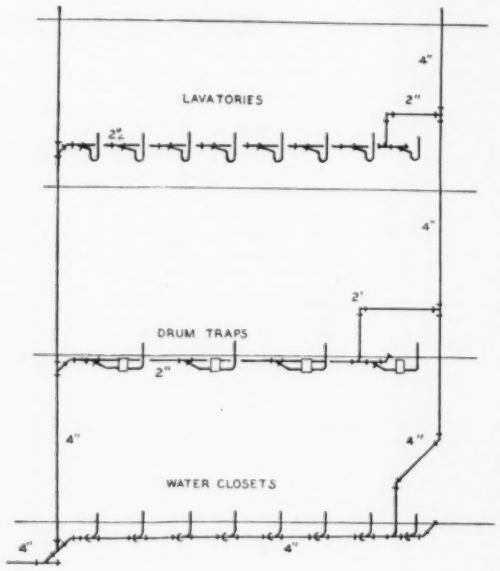


Fig. 4

type that the Hoover code advocates, but something entirely different.

The subject of wet vents was investigated several years ago, and it was found that there were something

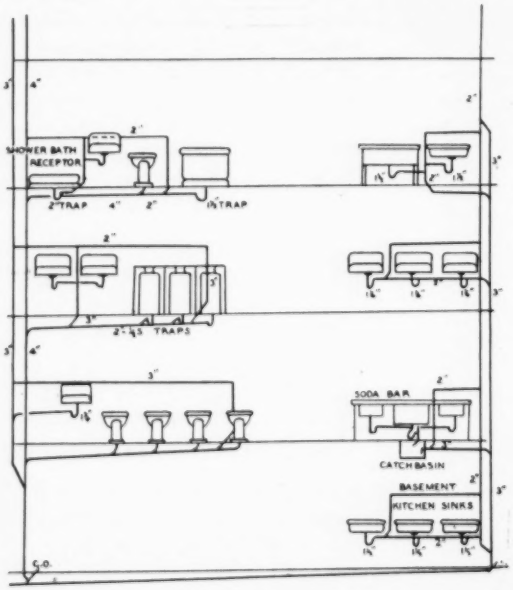


Fig. 5

like five different interpretations of the term in actual use. In other words, a wet vent was one thing in one town and one of several different things in some other town.

A study of the tabulation on this subject will show that where the practice is allowed it is generally limited to bathroom fixture vents. Such limitations will generally be found wise. The idea is that a wet vent is alternately a waste and a vent pipe, and it should be seen that use is made of such a vent only under conditions where there would be no danger of such a connection having to be used at the same instant in both capacities. The bathroom is the safest place in which to make use of the wet vent for the reason that as a general thing only one fixture in the bathroom is being discharged at a given time.

Fig. 1 shows a use of the wet vent that is allowed in the plumbing code of Birmingham, Ala., and Fig. 2 what seems to be a very acceptable use in two-floor work, as allowed by West Palm Beach, Fla., and Mobile, Ala.

Tests Show How Radiator Enclosures Affect Room Temperatures

(Continued from Page 47)

low, narrow radiator the change from plain galvanized to a black oil paint increased the steam condensed per hour 18 per cent, and raised all room temperatures about 4.5 deg. Fahr.

Conclusions

As a result of the investigation the following conclusions taken from University of Illinois Engineering Experiment Station Bulletin* No. 192 may be drawn:

(1) A reduction in steam condensing capacity of an enclosed radiator represents a sensible gain in steam economy if the reduction is accompanied by equally or more satisfactory air temperature conditions within the room.

(2) A reduction in steam condensing capacity of an enclosed radiator represents a sensible loss in steam economy if the reduction is accompanied by less satisfactory air temperature conditions within the room.

(3) More satisfactory air temperature conditions in the room are represented in general by higher temperatures of the air near the floor, higher mean temperatures of the air in the living zone, or below the breathing level, and lower temperatures of the air near the ceiling.

(4) The use of a properly designed radiator enclosure, or shield, results in a gain in steam economy, and equally or more satisfactory air temperature conditions in the room as compared with those obtained by the use of an unenclosed radiator.

(5) The use of an improperly designed radiator enclosure, or shield, results in unsatisfactory air temperature conditions in the room unless an amount of radiation in excess of that required for an unenclosed radiator is installed.

(6) A properly designed enclosure or shield should offer a minimum of resistance to the flow of air over the radiator under gravity head, and should protect the wall back of the radiator against the effect of direct radiation from the radiator. It should have the top of the opening in the face of the enclosure as high as possible, and permit free access of air over the lower half of the radiator, especially near the floor.

(7) The degree of comfort experienced by the oc-

* "Investigation of Heating Rooms with Direct Steam Radiators Equipped with Enclosures and Shields," by A. C. Willard, A. P. Kratz, M. K. Fahnestock, and S. Konzo.

ONE CUSTOMER TELLS ANOTHER ABOUT THE GLOBE SIZZLER..... AND THAT MEANS *MORE SALES FOR YOU*

The GLOBE SIZZLER FURNACE COIL

U. S. Pat. No. 1449660
Can. Pat. No. 284979

AFTER you install a Globe Sizzler, you'll probably hear plenty about it. Not "kick-backs" but "comebacks" in the way of orders from new customers sent you by satisfied users.

The woods are full of people who like to tell their friends about household items which have given them satisfactory service. And, when it comes to furnace heating coils, many of these people just won't be able to say too much about the Sizzler.

Once installed, the Globe Sizzler never fails to make friends for your shop because it gives better, longer service. Its greater heating surface assures hot water in less time; its patented, no-pocket bend (an exclusive Globe feature) affords free and noiseless circulation that is always in a horizontal or upward direction.

The Globe Sizzler puts real profits into your furnace coil business because, while it costs but little more than making up ordinary coils, you get more for the finished job. Installation is quicker, easier. Write today for information on how to get more sales and bigger profits with the Globe Sizzler.

Packaged

The Globe Sizzler comes ready-made in different lengths, to fit all makes of furnaces. Each coil is packed in an individual carton, protecting threads and identifying size.

GLOBE MACHINERY & SUPPLY CO.
DES MOINES, IOWA

GLOBE SIZZLER
THE ONE-PIECE NO-POCKET FURNACE COIL

GLOBE MACHINERY & SUPPLY CO.
DES MOINES, IOWA

I am interested in eliminating the grief from furnace coil installations and in how to get more profit from them. Please send me complete information about the Globe Sizzler.

_____

_____

_____

DE-11

TRUS-FITTING

Added Strength where it is needed most

AT the points where stress and strain are greatest, a sturdy web of metal assures added strength. Where branch lines are forcibly aligned with main lines, the tees must withstand the strain set up by the tremendous leverage the journey-man can exert on the branch lines. Square "Gee" tees now have a truss reinforcement in each crotch to assure that extra margin of safety. For added strength where it's needed most, use Square "Gee" Trus-fittings — the new Square "Gee" malleable fittings with the heavy duty crotch reinforcement. Trus-fittings are furnished in convenient sized cartons.

THE GRABLER MANUFACTURING COMPANY
6565 BROADWAY CLEVELAND, OHIO
Warehouses: **New York · Chicago · Los Angeles · San Francisco**

YOUR FITTING PROBLEM IS SOLVED WHEN YOU SAY SQUARE "GEES"

SQUARE Pipe **"GEE" Fittings**

MALLEABLE, CAST IRON DRAINAGE, BRASS

cupants of a room is greatly influenced by the temperature of the inner surface of the walls as well as by the temperature of the air in the room.

(8) The temperature of the inside surface of exposed standard frame walls may be as low as 50 deg. Fahr. after a long period of exposure to a temperature of zero deg. Fahr. outdoors and 70 deg. Fahr. at the breathing level indoors. This applies especially to north walls or any wall not exposed to a considerable amount of sunshine.

(9) The use of insulation in the exposed walls of a room will reduce the flow of heat through the walls, and result in higher temperatures for the inside surfaces of the walls than the corresponding temperatures for the same types of walls without insulation. This increase in surface temperature is of even more importance than the saving of heat, since its direct effect is to produce a greater degree of comfort for the occupants.

(10) The proper location for insulation in an exposed wall is not governed by considerations of relative resistance to heat flow through the various layers or materials of the walls nor by the temperature gradients, but is governed by practical considerations of wall construction and the possibility of air leaks into the studding space or other air circulating channels. From the latter viewpoint it is certainly advisable to place the insulation as near to the inner surface of the wall as possible.

(11) The maximum rate of cooling for a wall exposed to a constant outdoor temperature occurs immediately after the heating is discontinued, and is very high.

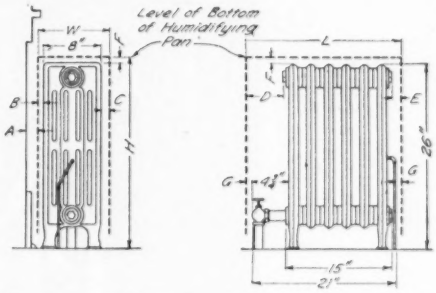
(12) In cases where short warming-up periods are desired after a stand-by period with no heat supplied, it is advisable to install both radiation and boiler heating capacity in excess of that required to maintain a given temperature of the air at the breathing level in the rooms of the building.

A Recommendation Concerning Room Temperatures As an Index of Heating Effect

In comparing the performance of various types of heating plants such as direct steam and hot-water, and indirect warm air systems, it has been customary to assume that they were equally effective in heating rooms if they maintained the same breathing line temperature, usually specified as 70 deg. Fahr., 5 ft. 0 in. above the floor. Such a basis of comparison takes no account of any other temperatures in the room, and neglects entirely the temperatures in that part of the room in which the occupants actually live.

A consideration of the facts set forth in the preceding sections shows that the air temperature at a level 5 ft. 0 in. above the floor is a very poor index of the average air temperatures below this level, whereas the air temperature at a level of 2 ft. 6 in. above the floor reflects almost precisely the average air temperatures below the 5 ft. 0 in. level, and at the mid-height of the zone of human occupancy. Different types of heating systems or different systems of the same type may maintain exactly the same temperatures at the 5 ft. 0 in. level of breathing line in a room, but the temperatures at the 2 ft. 6 in. level may vary widely with the different systems or types of the same system. If the selection of a heating system were left to the occupants of the room, there might be an emphatic preference for some, and much dissatisfaction with the rest, and yet all the systems considered might maintain 70 deg. Fahr. at the breathing line. The occupants would be influenced solely by the air temperature at the 2 ft. 6 in. level. Moreover, it is almost certain that the preferred system, which would be the one maintaining the highest air temperature at the 2 ft. 6 in. level, would be the most efficient and require the least heat input into the room.

If the results from this entire investigation of room heating indicate anything, they indicate that air tempera-



Enclosure No.	Dimensions in Inches							Inside Dimensions		
	A	B	C	D	E	F	G	W	H	L
1	2½	0	—	—	—	¼	—	9	26½	16
2	1⅜	1⅛	1⅜	7½	4½	1¼	3	10½	27½	27
3	1¼	1⅛	1¼	6⅝	3½	¾	1⅞	10⅜	26½	24½
4	2½	—	—	—	—	0	—	9	26	15
5	1⅝	⅜	⅜	5½	2½	1½	1	9½	27½	23
5a	1⅝	⅜	⅜	5½	2½	3	1	9½	29	23
6	2½	—	—	—	—	0	—	8	26	15
7	2½	0	—	—	—	0	—	8	26	15
8	1⅝	⅜	⅜	5½	2½	1¼	1	9½	27½	23
8a	1⅝	⅜	⅜	5½	2½	1¼	1	9½	27½	23
9	1⅝	⅜	⅜	5½	2	1¼	⅜	9½	27½	22½-12
10	2½	¼	¼	5½	2½	1½	1	8½	27½	23
11	1⅝	1⅛	⅜	5½	2½	1¼	1	10	27½	23
12	3	—	—	—	—	—	—	7½	26	15
12a	3	—	—	—	—	—	—	7½	26	15

Fig. 11—Summary of dimensions of radiators and covers tested

tures taken solely at the 5 ft. 0 in. level or breathing line in a room are very poor indexes of the effectiveness of the heating unit in the room for maintaining satisfactory temperatures at the 2 ft. 6 in. level or comfort line, as it may well be called. Unquestionably, both breathing and comfort line temperatures should be taken and that system which for a given breathing line temperature will maintain the highest comfort line temperature is the best. From data now available for the first time, it is almost certain such a system will also require the least heat input into the room.

◆

Effective Heat Output of Radiators

Engineers have recently been giving some thought to the so-called *effective warming* of direct radiation. Research has developed the fact that certain types of radiator covers or enclosures, in medium size rooms at least, will produce the same room air temperature at say 2 ft. 6 in. above the floor with less steam consumption than an unenclosed radiator. This is due to the fact that the ceiling temperature is less with the cover or enclosure with a consequent smaller heat loss through the ceiling and upper sections of the side walls.

NOW

is a most profitable time to sell

DURIRON ACID PROOF DRAIN-PIPE

on every repair, replacement or new-construction job where the waste waters carry corrosive acids.

THE addition of Duriron to your bill of materials carries a profit you will welcome right now—and gives your customer an insurance against future replacements which makes it a profitable investment.—Keep this in mind for battery service stations, photo-engraving and electro-plating plants, school and hospital laboratories—wherever acids are used.—No extra labor—installed just as Ex.Hy.C.I. Soil Pipe, with calked (and permanently tight) joints.—Recommend *Acid Proof Duriron.*

Our price list should be in your file. Shall we send one?

THE DURIRON COMPANY, Inc.

410 No. Findlay Street Dayton, Ohio

Sales Offices in 36 Principal Cities

SUPPLY NEWS

AMONG MANUFACTURERS, WHOLESALERS AND SALESMEN

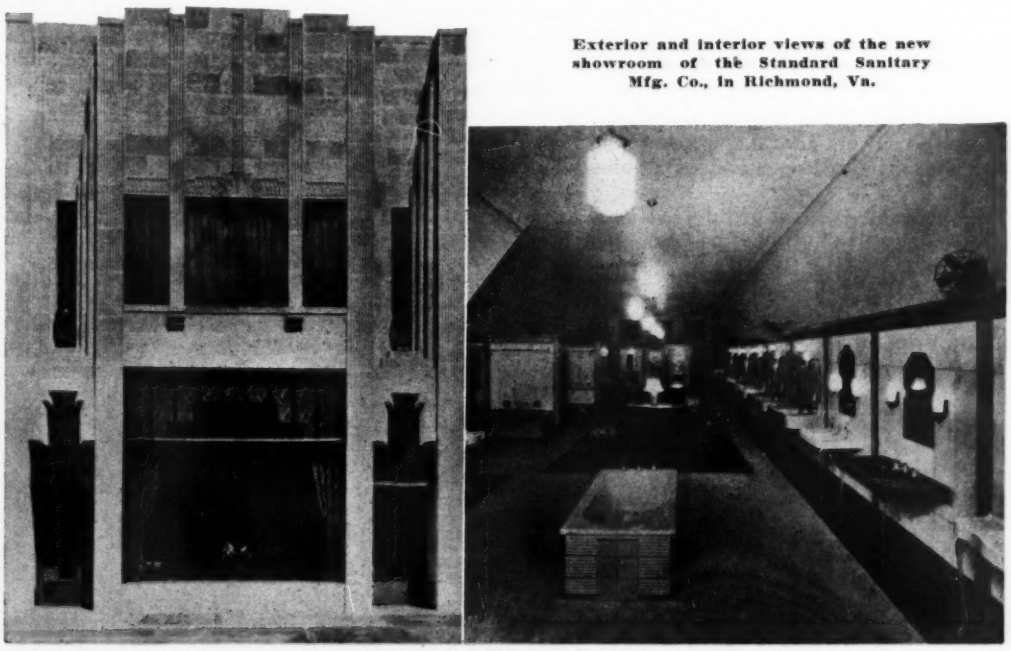
Standard Sanitary Mfg. Co. Opens New Showroom in Richmond

The Standard Sanitary Mfg. Co. has opened a new showroom in Richmond, Va. The showroom adds to the list of display rooms maintained by this company for the contractor, architect, builder and home owner, and will serve eastern and central Virginia. The room, located at 304 East Grace street, is in one of the most exclusive shopping districts of Richmond. The store front, designed in the modern manner, is of Indiana limestone with ornamental bronze caps over the doors. The showroom occupies a space 24 by 96 ft., with floor of shell pink terrazzo bordered in black terrazzo. Display panels are of buff, with pilasters and friezes of green. A display of colored lavatories and a tiled-in colored bath greet the visitor as he enters the door. Farther back, with each fixture in an individual panel, are sinks, with imitation windows and painted outdoor scenes above them. Dishwashers and clotheswashers are also shown. On the opposite wall are three complete bathroom groups, with fixtures in each group of the same color. In the rear is a shower compartment with plate glass door. Rugs, tables and chairs provide a restful atmosphere and allow guests to inspect the display at leisure. A. G. Blake is in charge of the salesroom, which is the sixty-third maintained by the Standard Sanitary Mfg. Co. in the United States.

◆

E. L. Flentje Elected Commissioner of National Plumbing and Heating Institute

E. L. Flentje, secretary-manager of the Plumbing and Heating Industries Bureau, Chicago, has been elected commissioner of the National Plumbing and Heating Institute, trade practice group of the industry, to succeed Fred W. Swanson. Mr. Flentje has submitted his resignation to the bureau, effective immediately upon the appointment of a successor. The official announcement from the bureau gives the following information:



Exterior and interior views of the new showroom of the Standard Sanitary Mfg. Co., in Richmond, Va.

E. L. Flentje

Mr. Swanson, president and commissioner of the institute since its foundation, is retiring December 31 as commissioner to devote his full time to administration of his own business, the Globe Machinery & Supply Co., Des Moines, Ia.

Mr. Flentje has been a member of the staff of the Plumbing and Heating Industries Bureau for the past four years. He served as head of the bureau's advertising department, as director of the Philadelphia Plumbing and Heating Development League, as head of the commercial research and sales promotion department, and has been, for the past year, secretary-manager of the bureau.

In announcing Mr. Flentje's acceptance of the position of commissioner of the institute, Mr. Swanson said:

"Mr. Flentje was unanimously elected. Members of the institute's board have watched with keen interest his able management of the Plumbing and Heating Industries Bureau during the past critical year. They feel that the bureau's strong position in the industry today is due, to no small extent, to his ability as an organizer and to his forceful personality. They believe that the new president of the institute, Harry G. Starr of Boston; the first vice president, C. R. Crane II of Crane Co.; the executive committee; and the entire board are extremely fortunate in securing Mr. Flentje as commissioner, and that his demonstrated ability will supply effective leadership in carrying out the institute's program."

Mr. Flentje's letter of resignation from the secretary-managership of the bureau called attention to the sound and practical program now under way in the bureau. "The present program," he stated, "is going forward on a sound financial basis which gives me every confidence in the continuance of the service it is rendering the industry. Reports of tangible results from bureau services and educational work from all branches of the industry indicate that the program is filling a real need. I leave with every confidence in the bureau's future."

Prior to his connection with the bureau, Mr. Flentje had extensive merchandising and advertising experience on the Pacific Coast as well as in Chicago. He is a graduate of the University of California, and has done post-graduate work in European universities.

Institute Approves Larger Program

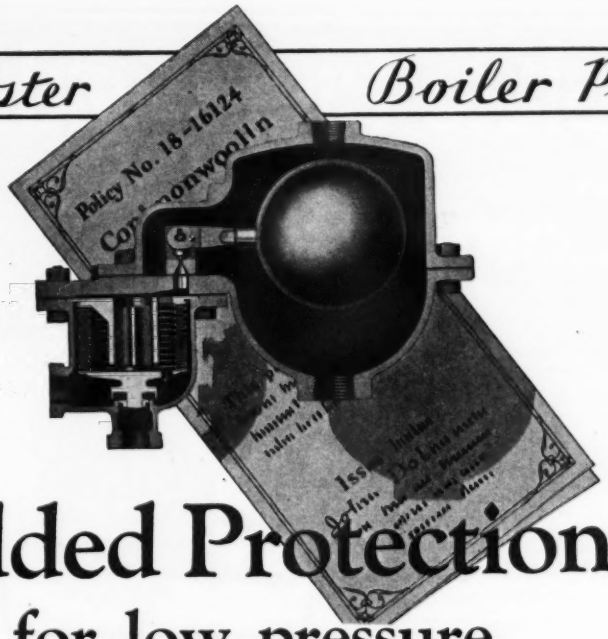
AT the annual meeting of the National Plumbing and Heating Institute, the member associations, consisting at this time of the Eastern Supply Association, Central Supply Association, National Pipe and Supplies Association, Western Supply Association, Soil Pipe Association, Valve Manufacturers' Association, National Association of Fittings Manufacturers and the Plumbers' Woodwork Institute, were all represented. Approximately thirty representatives of all associations were in attendance.

The member associations adopted the two amendments proposed, which had previously been submitted to all the members of the associations and had been approved by a majority vote. The one amendment permits the board of directors of the Institute to fix such dues and propose such budgets as would be necessary to carry on the Institute without the necessity of being approved through a vote of the members of the member associations. The second amendment provides that the board should be enlarged and consist of twelve manufacturing directors and twelve wholesaling directors. The manufacturing directors would be selected at large and represent the industry at large, and the wholesaling directors would be selected to represent regions.

The member associations also approved the recommendation previously made by the directors at the Sept. 10 meeting, that the annual dues of the members of the Institute shall be at the rate of $5.00 per capita for each member of the associations that are members of the Institute, and that the budget of $125,000 voted for the year 1931 shall be raised through voluntary contributions solicited from manufacturers and wholesalers, such contributions to be suggested on a graduated

F. W. Swanson

The New Webster Boiler Protector



Added Protection
for low pressure heating Boilers

YOUR customer's boilers *may be* insured but here is additional protection against one of the commonest sources of "grief" in low pressure boiler operation—*accidental low water level.* Examination of failures indicates that every low pressure heating boiler needs a device which offers *real* protection combined with utmost dependability.

Five Years in Meeting Webster Standards

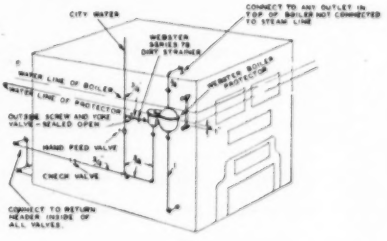
For five full years the Webster Boiler Protector has been in process of development, tested and re-tested under severe conditions. During the winter of 1929-30 almost 100 installations were subjected to every sort of use and abuse. Not until they met the high standards of other Webster equipment in every detail of performance through a complete heating season were they placed on sale.

Positive, Simple, Fool-Proof

While intended primarily as a protective device, the Webster Boiler Protector meets also the specification for a "safety" boiler feeder. Placed three inches below normal water line, its action is extremely positive because of the tremendous power operating the valve. Repeated severe tests have shown that this valve simply cannot be stuck closed. *You can depend on it, the water will not go below the danger level.*

How It Is Installed

Standard method of installation is shown below. Protector is placed 3" below normal water line, 1" above bottom of gauge glass. The hand valve is used for feeding water up to normal level. Webster Boiler Protectors can be installed during the winter as only a few hours shutdown is necessary.


CITY WATER
CONNECT TO ANY OUTLET IN TOP OF BOILER NOT CONNECTED TO STEAM LINE
WEBSTER SERIES 78 DIRT STRAINER
WARREN LINE OF BOILER
WATER LINE OF PROTECTOR
WEBSTER BOILER PROTECTOR
OUTSIDE SCREW AND YOKE VALVE—SEALED OPEN
HAND FEED VALVE
CHECK VALVE
CONNECT TO RETURN HEADER INSIDE OF ALL VALVES

New Sources of Profit for the Heating Contractor

The opportunities for selling Webster Boiler Protectors are unlimited. Every Webster Vacuum and Type "R" System, other vacuum, vapor, or one-pipe jobs can use this positive protection. Every cracked or broken boiler you repair should mean an easy and profitable sale of the Boiler Protector. Be the first to recommend and install this device in your territory. The extra profit from these sales will be well worth while.

Write or 'phone the nearest Webster Branch Office for detailed information telling how the Protector works and how easily it is installed. Deliveries for your requirements can be made immediately. Order a half-dozen for your emergency stock.

WARREN WEBSTER & COMPANY, Camden, N. J.
Pioneers of the Vacuum System of Steam Heating
Branches in 60 Principal U. S. Cities. Darling Bros., Ltd., Montreal, Canada

P-2

Complete Lines within a Complete Line

Ever-Oiled Shallow Well System No. W-405

Automatic-Oiling Deep-Well System No. 7828 VAT.

INCLUDED in the complete line of Goulds pumps is a complete line of Ever-Oiled Shallow-Well Water Systems and a complete line of Automatic-Oiling Deep-Well Systems—for every rural and suburban "water under pressure" service.

Progressive plumbers are finding that Goulds dependability creates good will for them, and that a little special effort in selling Goulds Water Systems creates a ready market for bath room and kitchen fixtures and other modern home equipment.

Water Under Pressure From Shallow Wells ~ From Deep Wells

The Ever-Oiled Line for Shallow Wells

12 sizes and styles

Pumps permanently lubricated and unconditionally guaranteed for two years. Automatic starting and stopping. All pumps equipped with ball bearings. For open-tank or pressure systems.

Goulds Pumps, Inc.
Seneca Falls, N. Y.

☐ Please send me Catalogue 17, "Ever-Oiled Water Systems for Shallow Wells."

☐ Please send me Catalogue 18, "Automatic-Oiling Deep-Well Systems."

Name.....

Address.....

City.....State.....

The Automatic-Oiling Line for Deep Wells

50 different outfits for open-tank and pressure systems.

Choice of drives — V-belt; silent chain; flat belt.

4-in., 6-in., and 8-in. strokes.

Single or double-acting cylinders.

All bearings bathed in continuous flood of oil by Gear Mesh Lubricator (patent pending). Tightly enclosed crank case holds six months' supply of oil.

Shock and wear minimized by air chamber which acts as shock absorber.

Smooth, even flow of water obtained by differential plunger.

Write to-day for Catalogues 17 and 18 describing these two complete lines.

GOULDS PUMPS, Inc., Seneca Falls, N. Y.

GOULDS PUMPS

scale based on the volume of business done by such manufacturers and wholesalers for the year 1930.

Twenty-four new directors were elected, twelve manufacturers and twelve wholesalers.

The members approved the work of the Institute the past year and pledged their financial support for the enlarged program for 1931.

The new enlarged board of directors met immediately following the adjournment of the annual meeting of the member associations. The new officers were elected as follows:

President, H. G. Starr, Wm. H. Gallison Co., Boston; first vice president, C. R. Crane II, Crane Co., Chicago; treasurer, J. C. McEwen, Davies Supply Co., Chicago; temporary secretary, W. E. McCollum, Central Supply Association, Chicago; vice president, Leo M. O'Neil, president, Eastern Supply Association; vice president, W. H. Kiefaber, president, Central Supply Association; vice president, J. C. Bowles, president, Western Supply Association; vice president, C. F. Harvey, president, National Pipe and Supplies Association; general counsel, Louis E. Flye, Boston.

The executive committee were empowered to employ a new commissioner, who will also be the permanent secretary, to succeed Mr. Swanson, the present commissioner.

The board unanimously approved a budget of $125,000 for the 1931 activities of the Institute for the enlarged program as suggested. In addition to an office at Chicago, a New York office will be opened. Three or four field men to contact zone committees throughout the United States will immediately be employed to more successfully co-operate with the local committees, and an enforcement committee and a complaint committee were authorized by the board of directors to be appointed by President Starr.

New President Urges Support

H. G. Starr in accepting the presidency of the Institute stressed the great value the trade practice movement had been to the entire industry, commented on the former president's report to the effect that virtually the entire industry had accepted the principles of the fair trade practice movement inasmuch as 1,034 wholesalers and 744 manufacturers had signed the trade practice rules. Mr. Starr further stated that he felt the Institute should carry on more vigorously than ever this most important work of all work to the industry and function only to make more successful the aims of the Institute as described in Article 3 of the articles of association and by-laws "To conduct a systematic research in connection with the ethics and practices of the trade in plumbing and heating supplies and allied businesses.

"To develop, adopt and promulgate uniform trade practices, and to amend the same whenever necessary or convenient for the more efficient conduct of the trade, or to comply with any federal or state law, rule, or regulation. By education or other means to cause trade practices, as determined upon, to be accepted and adopted as the standard and uniform trade practices, and to obtain recognition of the same as official by governmental or regulatory agencies.

"To act for and represent the industry in the study, development and promulgation of fair trade practices in connection with joint conferences with the federal trade commission for the establishment of such rules and practices.

"To receive, investigate and report to members and to the federal trade commission the employment of practices as defined by the federal trade commission to be unfair, and, in general, to use every effort to secure the general adoption of, and adherence to, the fair trade practices as defined by the federal trade commission.

"To act for the establishment of more equitable relations between individual, firms, associations and corporations engaged in the business of manufacturing of, or dealing in, or with, plumbing and heating supplies and allied articles.

"To act as arbitrator between members or between members and others, in relation to the conduct of business either in matters of determining principles of future conduct, or the settling of particular disputes.

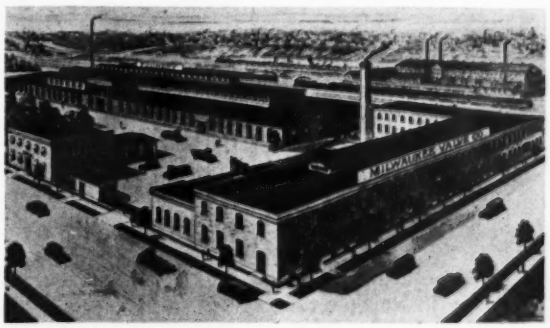
"To have one or more offices to carry on all or any of its operations and business in any of the cities, districts, territories or colonies of the United States."

Mr. Starr closed his acceptance remarks by stating he would make every effort to co-operate with every association or organization within the industry for the purpose of promoting better trade relations and trade practices throughout the entire industry.

◆

Milwaukee Valve Co. Expanding

The Milwaukee Valve Co., Milwaukee, Wis., has moved from its old general offices into more spacious quarters in a new two-story fireproof building of brick and concrete construction at 2355 to 2375 South Burrell street, in that city. The old office



The plant of the Milwaukee Valve Co., Milwaukee, Wis., with the new office building at the left

quarters have been converted into factory space. The company's expansion program calls for additional plant construction this fall, the space to be occupied by new machinery equipment. This is to be followed by the construction of a new power and heating plant. Within the next year, the company plans to build an additional foundry for brass, bronze and aluminum products. John Fraser, Jr., is president and general manager and Val. Fina is vice president and plant manager.

◆

Opens New Showroom

The Youngstown, Ohio, branch of Crane Co. has opened a new showroom in connection with its offices at 324 West Commerce street, Youngstown, Ohio.

Hajoca Corp. Opens New Branch

The new branch of the Hajoca Corporation, at Reading, Pa., was officially opened on Wednesday, October 15. Nearly two hundred guests, including master plumbers, heating contractors, architects and engineers, attended for a private viewing of the warehouse, stores and display room. The guests were welcomed by William A. Brecht, president, assisted by Charles A. White, vice president; F. W. Dows, treasurer; John T. Brown, assistant treasurer, and Rodney D. Watson, branch manager.

The new branch is located at Second and Grape streets, within walking distance of railroad centers and shipping districts. On the second floor, an attractive display of colored fixtures is maintained, in order to aid master plumbers in showing their customers the actual color of these products. The building contains ample warehousing space, and a large pipe shed is located at the rear of the property. A railroad siding insures efficient handling of carload freight shipments. Heating equipment, boilers and soil pipe are kept on the first floor.

◆

Buffalo Pipe & Foundry Corp. Organized

The Buffalo Pipe & Foundry Corporation was recently organized with plant and office at 9 Austin street, Buffalo, N. Y., where the new corporation is operating in one of the plants formerly occupied by American Radiator Co. The officers of the corporation are: Frank B. Baird, president; Ralph R. Rabe, vice president and general manager; Cameron Baird, vice president, and Wm. C. Baird, secretary and treasurer.

Ralph R. Rabe

Mr. Rabe was formerly vice president and general manager of the Tucker Foundry Co. of Medina, N. Y., which has been purchased by the new organization and will be operated as a manufacturing branch. He was also at one time connected with one of the largest manufacturers of soil pipe and fittings and formed and operated the Rabe Pipe & Foundry Co.

Mr. Baird, the president, has been in the iron business for many years and is president of the Buffalo Union Furnace Co., president of the Canadian Furnace Co. at Port Colbourne, Ontario, president of the Buffalo & Fort Erie Bridge Co., and a past president of the Buffalo Chamber of Commerce.

The new corporation is manufacturing soil pipe and fittings.

◆

J. B. Wise, Inc., Appoints Representative

J. B. Wise, Inc., of Watertown, N. Y., has appointed James A. Riordan Co., Inc., as northern California representative, covering north from and including Fresno. The Riordan company is located at 1600 East Seventh street, Los Angeles, Calif.

William J. Woolley Joins Advertising Agency

William J. Woolley

William J. Woolley, formerly president of Wolff Co., as announced in the last issue of DOMESTIC ENGINEERING, is now associated with the Thos. M. Bowers Advertising Agency, of Chicago, as vice president. Prior to his connection with the Wolff Co., Mr. Woolley was managing director of the National Trade Extension Bureau, now known as the Plumbing and Heating Industries Bureau. He has a wide acquaintanceship in the industry, and for many years was a national figure as a plumbing and heating contractor. While he has entered a new line, he will, of course, specialize in the plumbing and heating field.

The general office of the Thos. M. Bowers Advertising Agency is in the Kimball building, 25 East Jackson street, Chicago. A branch office is located in St. Louis and another is planned for New York City in the near future.

◆

A. S. H. V. E. Convention to Be Held in January

The annual convention of the American Society of Heating and Ventilating Engineers will be held in Pittsburgh, Pa., January 26, 27, 28 and 29, 1931.

◆

Appoints Representatives

Fitzgibbons Boiler Co., Inc., New York City, has appointed Malvin & May as its representatives in Illinois and Wisconsin, with headquarters in the McCormick building, 332 South Michigan avenue, Chicago. Ray C. Malvin and Maxwell F. May comprise the firm of Malvin & May.

◆

Appointed Distributors

The Vessey Emerson Co., 2401 Chestnut street, Philadelphia, have been appointed distributors in that district for the Conemaugh Iron Works of Latrobe, Pa., and the Knott Mfg. Co. of Tell City, Ind.

◆

Moves General Offices

The general office of the International Filter Co., Chicago, is now located at 59 East Van Buren street. The laboratory remains at the No. 1 plant on West Twenty-fifth place.

◆

International Acetylene Association to Hold Convention

The International Acetylene Association will hold its thirty-first annual convention at the Congress Hotel, Chicago, November 12, 13 and 14, according to announcement of A. C. Morrison, secretary. The

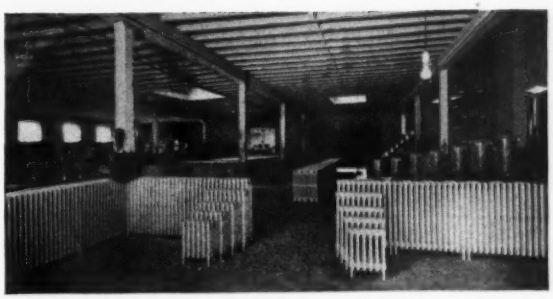
M. T. G. A. Holds Last Meet of the Season

Enjoying a perfect day for golf, 32 members and 8 guests of the Metropolitan Trade Golf Association, New York City, played the Wykagyl Country Club, New Rochelle, N. Y., in the last meet of the season. The occasion was one on which each player was awarded a prize in accordance with his net score. Some members could not complete the afternoon round before darkness fell, in which event their morning scores were used while those who completed both the morning and afternoon rounds deducted their handicaps from their lowest gross scores.

President T. A. Johnson, who was host, distributed the prizes after dinner. These included golf bags, belts, etc. The dinner was a particularly joyous affair as Captain P. C. Platt was celebrating his first wedding anniversary and J. A. Edwards his sixth.

The scores and handicaps of the players were:

	Morning	Afternoon	Handicap	Prize
F. Korndorfer	91	88	25	1st
G. B. Van Buren	95	95	35	2nd
J. S. Weaver	86	90	22	3rd
F. Allen	103	89	27	4th
T. A. Johnson	82	76	10	5th
E. Doolittle	97	94	26	6th
C. G. Wall	92	84	17	7th
T. F. Larken	99	..	35	8th
L. S. Rothwell	87	..	20	9th
E. F. Keating	84	82	10	10th
A. W. Hale	100	..	35	11th
H. N. Booth	92	..	23	12th
W. H. Murphy	100	111	35	13th
D. J. Molloy	91	91	18	14th
J. Davis	108	..	35	15th
M. Ready	96	..	25	16th

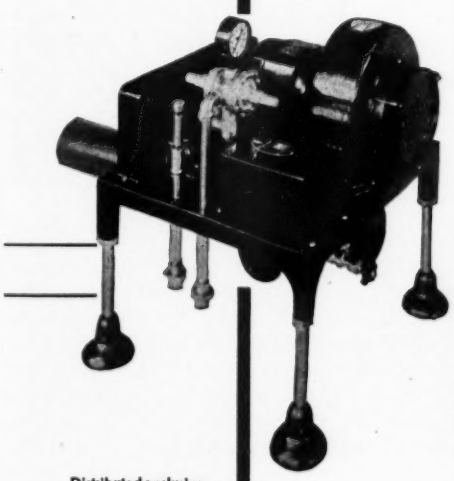


New warehouse of United States Radiator Corp., at Atlanta, Ga.

	Morning	Afternoon	Handicap	Prize
E. F. Conroy	107	117	40	17th
H. Garrity	102	91	22	18th
G. W. Hamill	100	..	30	19th
K. S. Roberts	97	86	15	20th
C. Henzel	125	124	45	21st
P. C. Platt	92	..	15	22nd
G. Keenen	93	107	25	23rd
L. M. O'Neil	98	..	17	24th
E. D. Winslow	118	..	45	25th
W. C. Hallett	121	..	45	26th
C. S. Coleman	127	..	40	27th
T. H. Dawson, Jr.	118	132	38	28th
L. N. Heatherton	133	..	45	29th
L. A. Kelly	103	..	25	30th
T. Nickerson	140	..	40	31st
H. P. Heil	137	..	40	32nd

Guests

J. A. Edwards.....1st Prize	A. Cashman .....5th Prize
J. Thorne .....2nd Prize	V. Kincaid
John Weil .....3rd Prize	T. Powers
E. T. Rowe.....4th Prize	T. Denicke



Distributed exclusively thru the Plumbing and Heating Trade, under liberal cooperative Dealer Agreement.

THIS
OIL BURNER
—makes money and friends

"QUIET AS A KITTEN"

WALTHAM OIL BURNER

You, as a Heating Contractor, must not only look to the profits of present business, but also to the future. Waltham Oil Burner not only makes money for you, but friends, too. It is one sure way to build up your heating business by establishing a reputation for thoroughness. The reason is easy to see. Waltham Oil Burners are quiet—economical and dependable.

Write for complete information.

WALTHAM OIL BURNER CORPORATION FACTORY AND GENERAL OFFICES WALTHAM, MASSACHUSETTS

major portion of the program will be devoted to oxy-acetylene welding and cutting, and special sessions have been arranged on metal working industry, building construction, building piping and the distribution of oil, gas and water.

◆

Fitzgibbons Boiler Co. Enlarges Factory

Fitzgibbons Boiler Co., Inc., of New York City, is making a substantial enlargement of the works on the shores of Lake Ontario in Oswego, N. Y. When completed, the enlargement will provide a capacity for the production of five hundred steel boilers at one time. The addition is of fireproof steel and concrete construction.

◆

To Build Addition to Plant of Anaconda American Brass, Ltd.

The American Brass Co. will construct an addition at once to the Toronto, Canada, branch of its subsidiary, Anaconda American Brass Limited. The addition will provide facilities for the company's line of seamless tubing, and will round out the Toronto plant after the style of the American plants. The new addition will double the size of the Toronto plant.

◆

Now in New Location

The Staynew Filter Corp., has moved its factory and home office to new and larger quarters at 25 Leighton avenue, Rochester, N. Y.

◆

Death of John McClure Chase

John McClure Chase, vice-president of W. A. Case & Son Mfg. Co., Buffalo, N. Y., died on October 16 at the New Rochelle hospital, New Rochelle, N. Y., where he was taken October 11 suffering from a general breakdown. In the close to half century Mr. Chase had been identified with the plumbing and heating industry, he became one of its most widely known figures in the East. His connection with the industry started in the plumbing shop of his father, George W. Chase, at Syracuse, N. Y., in which city he was born in 1866. Some years after he had learned the business, his father became a factor in the formation of the Pierce & Chase Co., in Syracuse, which later became the Pierce, Butler and Pierce Mfg. Corp., and Mr. Chase became associated in the wholesale supply business with his uncle, R. C. McClure of that city. Later he went to Buffalo and obtained a position with W. A. Case & Son Mfg. Co. He resigned as head of the plumbing supply department and with O. W. Middaugh in 1900 organized the R. C. McClure Co., at Syracuse, which was conducted until 1916 and then sold to W. A. Case & Son Mfg. Co., with which concern he again became identified, taking charge of the company's interests in New York City.

John McClure Chase

During the World War Mr. Chase did government war work and during the Spanish American War joined the New York State National Guard for service in Cuba. For a time he was connected with the McCambridge, Cooper Co., Philadelphia, Pa., in an official capacity. His latest achievement was the development with J. M. Teahan of Detroit, Mich., of a one-piece water closet.

Mr. Chase was a direct descendant of Samuel Chase, signer of the Declaration of Independence. He was a member of the Masonic fraternity, the Elks, the Friars Club and the old Philadelphia Athletic Club, American Society of Heating and Ventilating Engineers, and the American Society of Sanitary Engineering. He is survived by his widow and daughter. Funeral services were held at his home in New Rochelle on Saturday, October 18, and the interment took place the following day in Oakwood Cemetery, Syracuse, N. Y.

◆

Death of Michael J. Callahan

Michael J. Callahan, president of the Peerless Unit Ventilation Co., Bridgeport, Conn., died at his home in Unquowa Hill, Sunday morning, October 19, after an illness of several weeks' duration. Mr. Callahan came, as a boy of six years, to America from Middleton, County Cork, Ireland, with his parents, and took up residence in New York City. Having gone through the public and high schools of New York, he found employment at the Third avenue Railway system, and entered upon what was to be his life work, the field of heating and ventilation.

Michael J. Callahan

After completing his apprenticeship in the heating and plumbing trade, he became superintendent of many large jobs where he installed heating and power plants. At an early age, he went into business for himself in New York City, under the name of the M. J. Callahan Co. His inventive skill caused many patents in the heating and ventilating field to be issued to him. In 1915, in association with Arthur V. Dearden, he founded the Peerless Unit Ventilation Co., of which he was president at the time of his death. This company was at first located in New York City, later sought larger quarters in Long Island City, and about three and a half years ago located in Bridgeport, Conn., where it purchased a large plant.

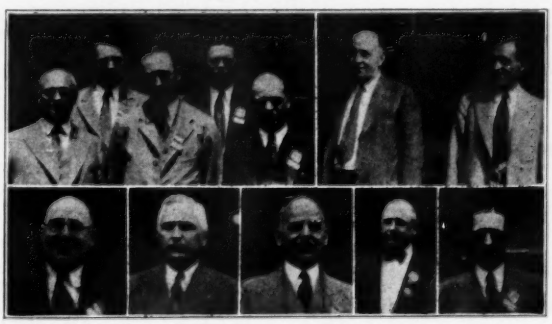
Mr. Callahan's standing in his line was universally recognized and he was frequently called upon to read

Eastern Trade Golf Association Plays Upper Montclair Country Club

Holding its final tournament of the season, the Eastern Trade Golf Association, New York City, met on September 25 at the Upper Montclair Country Club, Upper Montclair, N. J., as guests of A. S. Armagnac. The day, an excellent one for play and the course in shape for par golf, afforded the unusually large attendance of members and guests an opportunity to shoot at their best in competition for an assortment of prizes which were fitting as a climax to a year distinctly marked as a success. A heavy shower in late afternoon caught but four players who were tardy in getting started.

The tournament committee had arranged that each member in both Class A and Class B, instead of participating in the usual 18 hole best ball foursome, shoot 36 holes of medal play, turning in his best round of 18 holes. Two large sterling silver platters, provided as trophies by A. F. Hinrichsen of A. F. Hinrichsen Co., Inc., New York City, for the low net scores in each class for 36 holes, went to D. S. Cruickshank in Class A for his 146 and G. W. Hamill in Class B for his 159. Other winners in the former class were M. Ready, whose net 71 earned him a leather golf bag offered by J. J. Ney of American Radiator Co., New York City; T. M. Kellogg, who with a 73 received a two pen desk set presented by L. W. Charlet of the Kewanee Boiler Corp., Kewanee, Ill.; W. N. Peeples whose 76 drew an electric percolator and set donated by James A. Swan of Rome Brass Radiator Corp., New York City; L. C. Klemmer, who with a net 76 received a beverage shaker and water pitcher combination; H. N. Booth, with the same score, who was presented with a dozen balls given by L. C. Klemmer; S. C. Carrier, who with a 77 secured a ten dollar order for merchandise; A. R. Glore, with the same score, receiving a fitted traveling case; W. A. Davis, also with a net 77, who was presented with a ten dollar order; E. H. Page, whose 78 won him a silver cup; Henry Sleik, with a 79, securing a silver flask, and A. Eagle, with an 80, drawing an ash tray given by G. H. Fox of Pierce, Butler & Pierce Mfg. Corp., New York City.

The winners and prizes awarded in Class B were

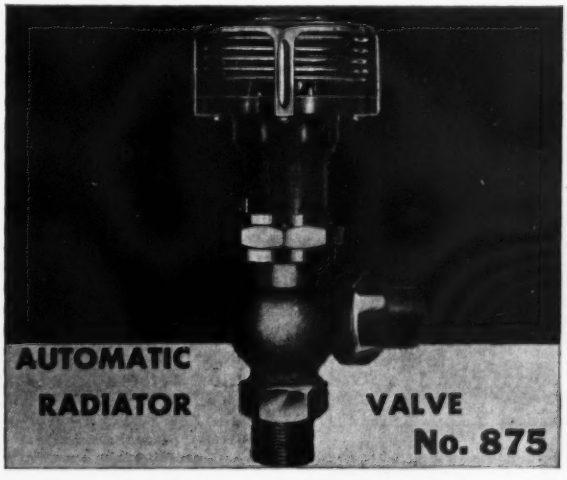


Top row: R. W. Hillman, Harley Smith, A. J. Blackhall, E. G. Blomquist and W. H. Gordon, all of U. S. Radiator Corp., Detroit; H. J. Van Cook and J. M. Sexauer, both of J. A. Sexauer Mfg. Co., New York City. Bottom row: Joseph M. Sands, vice president, Sands Mfg. Co., Cleveland, Ohio; J. A. Moore, Sanitary Earthenware Specialty Co., Trenton; R. C. Weber, Crane Co., Buffalo; C. P. Gabosch, Pittsburgh Valve and Fittings Co., Pittsburgh; C. H. Hall, staff manager, Johns-Manville Corp., New York City. Photos taken at Boston convention of the N. A. M. P.

Positive Elimination of Uneven, Injurious and Wasteful Heat for Factory, Office Building, Apartment or Home

In perfecting the Sylphon No. 875 Automatic Radiator Valve, Sylphon Engineers have filled one of the world's "biggest orders." They have produced a combination packless valve and temperature control unit which eliminates all individual radiator attention. Actuated by the famous Sylphon Bellows it functions accurately, has no electrical or mechanical accessories to get out of order, is simple to install and inexpensive to buy.

By the avoidance of wasteful heating, it accomplishes remarkable fuel economies. **Once installed, the Sylphon 875 Automatic Radiator Valve requires no attention other than to set the "marked" thermostatic head to one of the desired points, "Hot," "Medium," "Cold," or "Shut." Fluctuating temperatures are impossible. In workmanship, material and finish the 875 is up to the well known Sylphon Standards.**



SEND FOR BULLETIN V. D. 250

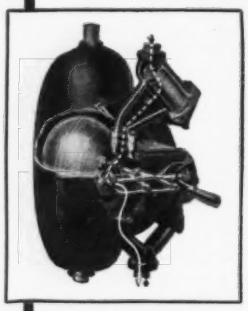
This complete, controlling device, a new Sylphon triumph is fully described (both types, the angle and globe valve) in our illustrated printed matter which will be sent free.

FULTON SYLPHON CO.
KNOXVILLE, TENN., U.S.A.

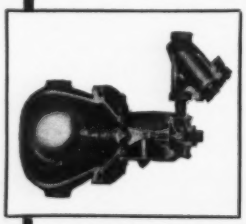
Representatives in all Principal Cities in U. S. A.—European Representatives, Crosby Valve and Eng. Co., Ltd., 41-2 Foley St., London, W. I., Eng.; Canadian Representatives, Darling Bros., Ltd., 140 Prince St., Montreal, Que., Canada.

More than

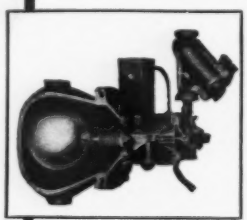
"fair-weather" performers!



The ease of adjustment between feed and overflow levels, coupled with superlative construction makes the McDonnell No. 28 Self-Cleaning Duplex Feeder the leader of all boiler feeders.



The McDonnell No. 30 Safety Feeder is ideal for smaller boilers. It is set low — near the bottom of the gauge glass —an excellent way to protect boilers under 3000 sq. ft.



The No. 30 Safety Feeder combined with the No. 31 Emergency Switch is the most revolutionary achievement in protecting oil-fired or stoker-fired boilers.

IT TAKES a little tough going to bring out the true merit of a man — or a *device*. And if there was ever a case of a product showing its selling power in clear-cut unmistakable terms, you have that case in the amazing record of McDonnell Feeders this heating season.

Yes, sales are far ahead of 1929 every month of this year to date — far ahead in a year when most products are simply hanging on or actually back sliding.

There can be but one explanation. Rough sailing makes men think hard and sift out the facts—makes them search for merit — makes them search out the sales possibilities of different products. The McDonnell Feeder stood this test. It was a product with a ready market — a product that filled a vital need — a product with quality and features that wipe out sales resistance.

That is why hundreds of contractors are relying on this easily sold specialty to help fill in the gaps made by the dearth of big contracts. That is why *you* will find it to your advantage to push McDonnell protection — from now *on!*

Ask for new bulletin covering service recommendations for all McDonnell Feeders

McDONNELL & MILLER
400 No. Michigan Ave., Chicago
Eastern Office:
Grand Central Terminal, New York, N. Y.

McDONNELL & MILLER
Boiler Feeders
"Doing one thing well"

as follows: D. W. Haire, with a 74, receiving a wrist watch presented by Harold Townsend, president of the association; A. G. Bartlett, whose 77 brought him an electric clock presented by S. C. Carrier of Heggie-Simplex Boiler Co., Joliet, Ill.; B. K. Strader, with a card of 78 earned a pair of binoculars offered by Walworth Co., New York City; F. A. Fenton received an order for merchandise in the amount of ten dollars in recognition of his net 80; W. E. Foskatt with a similar score was presented with a desk thermos set given by Al Engle of Jenkins Bros., New York City; G. E. Olsen whose 81 drew a zipper bag; Edward Bauman with one more stroke received an iced tea set; W. H. Driscoll got a thermos set offered by Herman Jackes of Aerofin Corp., New York City, for his 84; W. T. Rogers with an 85 secured a zipper bag given by C. W. Presdee, and R. W. Pryor, Jr., also with a card of 85, was awarded a golfer's umbrella.

The scores for the day follow:

CLASS A

Morning Round

	G.	H.	N.		G.	H.	N.
Engles	100	12	88	Reeves	93	4	89
Galbraith	96	14	82	Booth	90	14	76
McDonald	102	12	90	Peeples	102	18	84
Hinrichsen	97	11	86	Garfield	87	..	87
Bookhout	106	17	89	Kjerner	81	..	81
Keplinger	89	8	81	Cosgrove	106	14	92
Jackes	108	17	91	Klemmer	93	10	83
Kellogg	92	9	83	Glore	101	10	91
Carrier	87	..	87	Sleik	95	16	79
Davis	95	18	77	Readey	87	16	71
Hubbard	93	10	83	Murphy	100	18	82
Townsend	99	3	96	Cruickshank	83	12	71
Armagnac	108	14	94	Page	85	7	78

Afternoon Round

	G.	H.	N.		G.	H.	N.
Engles	92	12	80	Booth	99	16	83
Galbraith	95	14	81	Peeples	94	18	76
McDonald	104	12	92	Garfield	91	..	91
Hinrichsen	98	11	87	Kjerner	80	..	80
Keplinger	90	8	82	Cosgrove	111	..	..
Jackes	102	17	85	Klemmer	86	10	76
O'Neil	90	9	81	Glore	87	10	77
Weil	105	16	89	Sleik	104	16	88
Kellogg	82	9	73	Readey	105	16	89
Carrier	77	..	77	Murphy	115	18	97
Hubbard	100	10	90	Cruickshank	87	12	75
Townsend	90	3	87	Page	91	7	84
Armagnac	108	14	84	Staples	90	10	80
Reeves	93	4	89				

CLASS B

Morning Round

	G.	H.	N.		G.	H.	N.
Haire	104	30	74	Fenton	104	24	80
Driscoll	113	29	84	Cordner	113	26	87
Strader	102	24	78	Cuicci	123	25	98
Bacon	114	22	92	Walsh	123	25	98
Bowman	112	30	82	Shepard	113	25	88
Foskett	105	25	80	Fox	115	25	90
Harrison	121	24	97	Hamill	100	19	81
Charlet	118	30	88	Fiigon	115	21	94
Pryor	109	22	87	Rose (guest)	103	20	83
Rogers	105	20	85				

Afternoon Round

	G.	H.	N.		G.	H.	N.
Bacon	132	22	110	Olsen	101	20	81
Pryor	107	22	85	Rose (guest)	94	20	74
Rogers	106	20	86	Cashman (guest)	119	..	..
Fenton	112	24	88	Sheehan	136	28	108
Cordner	113	26	87	J. R. Finegan	134	28	106
Cuicci	124	25	99	Powers	114	20	94
Walsh	127	28	99	Smith (guest)	100	25	75
Shepard	114	25	89	Williams (guest)	105	21	84
Fox	118	25	93	Passeen (guest)	100	16	84
Hamill	97	19	78	Lahey (guest)	91	10	81
Fiigon	123	21	102	Griffin (guest)	110	30	80
Stokes	117	25	92	Hunt (guest)	105	..	..
Bauman	117	30	87	Ashley (guest)	119	36	83
Bartlett	101	24	77				

Western Trade Closes Season at Calumet

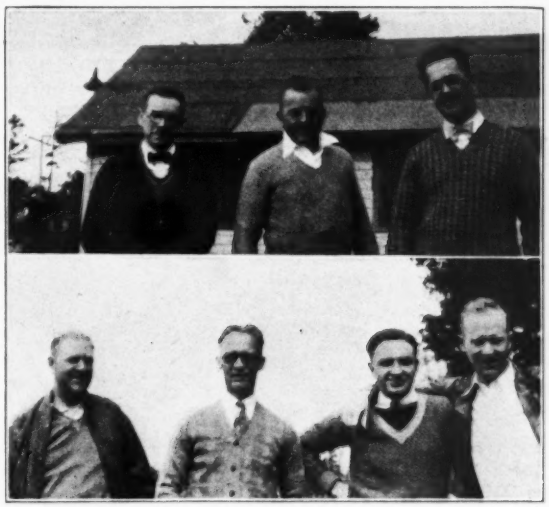
The Western Trade Golf Association of Chicago closed its 1930 season at Calumet Country Club on October 3. A good crowd turned out at this last opportunity to play together until next Spring, and Calumet's traps and creeks provided plenty of golf for them all.

W. A. Taylor was low net man for the afternoon, winning the association cup and first prize in class C. First in classes A and B was John P. Kiely, followed by H. M. Hart for second. M. W. Maloney was runner-up to Taylor in class C. George P. Smith and W. F. Thumm were first and second in class D.

C. E. Price won the morning qualifying round. J. H. O'Brien won the blind bogey event. The Reverend James Kiely shot a gross 79 to win the guest prize. J. C. Matchett won the duffer's cup.

Scores for the day follow:

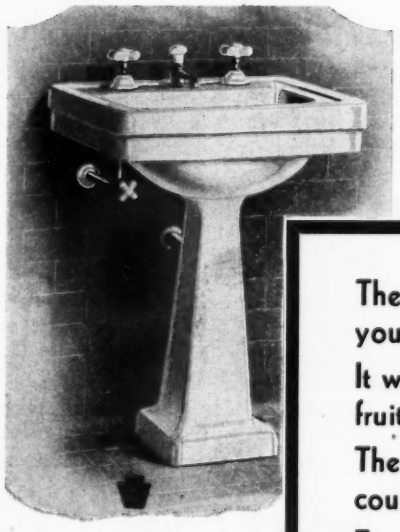
	G.	H.	N.
W. T. Walters	103	23	80
F. Bellis (guest)	124	..	..
E. Ashby	102	25	77
P. V. Hyland, Sr.	104	25	79
M. Feiber	110	26	84
L. J. Pitcher	97	12	85
J. J. O'Shea	97	20	77
W. A. Taylor	89	19	70
C. E. Price	108	22	86
J. C. Heisler (G.)	104	..	..
H. J. Denny (G.)	120	..	..
S. P. Hackley (G.)	123	..	..
G. P. Smith	99	27	72
A. O. May	99	19	80
J. C. Matchett	109	22	87
T. H. Monaghan	109	30	79
J. J. McCarthy	..	..	..
F. B. Hackett	103	23	80
J. A. Corboy	103	24	79
T. Wade	103	23	80
H. H. Jonathan (G.)	103	..	..
M. G. Henderson	97	17	80
G. H. Dickerson	99	22	77
I. Weil	111	30	81
C. E. Barrows	100	28	72
J. Krez	113	30	83
R. M. Getschow	104	23	81
A. S. Lindeblad	111	30	81
Porter West	93	10	83
D. M. Cooper	109	30	79
W. V. Hoier	105	30	75



Top row: S. E. Shea, Burke Electric Co.; Warner Spencer, secretary of Western New York Trades Golf Association; Walter Voisinet, treasurer of golf association. Bottom row: F. H. MacLaren, National Radiator Corp.; G. E. Carlson, Crane Co.; S. R. Rente, Time-O-Stat Controls Co.; A. K. Tinker, National Radiator Corp. Photos taken at the recent meet of the Western New York Trades Golf Association

	G.	H.	N.
A. B. Martin	106	30	76
M. W. Maloney	95	24	71
A. P. Campbell	93	12	81
O. L. McGinn	114	30	84
J. T. Crowe	110	27	83
James Kiely (G.)	79	..	..
J. P. Kiely	80	6	74
W. F. Thumm	96	27	69
W. M. Byrd	94	17	77
J. H. O'Brien	97	17	80
H. M. Hart	90	15	75

THE · PIKE · PEDESTAL · LAVATORY



The Pike, all vitreous china lavatory, will satisfy your most fastidious or discriminating customer.

It will not craze or rust and will not discolor under fruit and other household acids.

The Pike is competitively priced and yet is discounted to you at a price that allows a neat profit.

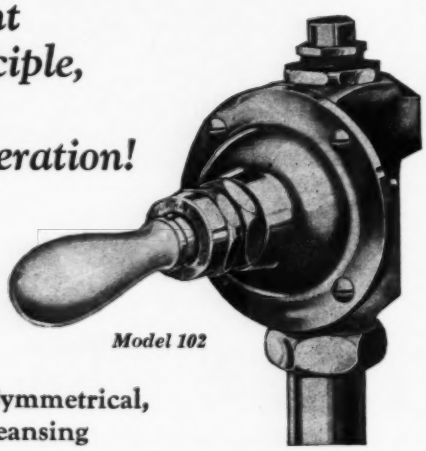
Easy to install and dependable for long service when on the job.

Write for complete details

KEYSTONE POTTERY CO., Trenton, N. J.

Haas Flush Valves

Different in Principle, Design and Operation!



Model 102

Compact, Symmetrical, and Self-Cleansing

The Haas 100 Series Flush Valves differ from all others in principle, design and operation. They are constructed on the principle of equalization of pressure, and consist of practically four parts, viz.: Front and back of red bronze, a fabric insertion rubber diaphragm, and a handle or push button unit. They have independent control, integral with the valve proper. Also a separate cut-off as well as a means of controlling volume of supply. They are positively self-cleansing . . . guaranteed for five years . . . last longer than that . . . priced right. Let us or your jobber tell you more.

The PHILIP HAAS CO., *Dayton, O., U. S. A.*

USE

SHERWOOD Ball Cocks

wherever continuous, quiet operation at economical cost are the requirements .....

For any bathroom job, from the most modest home to the high priced residence and for stores, offices, institutions, schools, etc. Sherwood Ball Cocks offer the most economical means of assuring complete tank operation satisfaction

They mean first of all, leakproof operation, regardless of the water pressure and they mean operation that is free from all whistling and gurgling.

They mean the finest in brass and in manufacture. They represent everything in a quality ball cock that you have ever wanted

Furnished with any length shank desired by your jobber Order Sherwood Ball Cocks today and for all your future work

SHERWOOD BRASS WORKS

Jefferson and Mt. Elliott Aves

DETROIT MICHIGAN

REPRESENTATIVES

technical papers for engineering bodies. He was an indefatigable worker, and was an active member of the American Society of Heating and Ventilating Engineers, the Fan Manufacturers' Association of America, and the Unit Heaters' Manufacturing Association, serving at times as an officer in these bodies. He made a host of friends, his social affiliations being with the Algonquin Club of Bridgeport, the Tuft Club of New York City, and the Elks. Mr. Callahan, who was in his fifty-fifth year, is survived by his widow, three children, his father, three brothers and a sister.

◆

Death of P. D. Schenck

P. D. Schenck, president of the Duriron Co., Inc., Dayton, Ohio, since its inception fifteen years ago, died Oct. 15.

In addition to having been interested in Dayton industrial enterprises for more than thirty years, Mr. Schenck had grown to be nationally known and was considered an authority on metals best suited to handle acids and to resist corrosion.

Mr. Schenck was a product of Sheffield Scientific School, Yale University, and in a remarkably short time worked his way to the presidency of the Dayton Malleable Iron Co. at Dayton. While so engaged, he conceived the ideas leading up to the development of an acid-resistant alloy. Further study on the part of Mr. Schenck has contributed new alloys for other fields.

Included among his many accomplishments was the organizing and building of the Speedwell motor car. During the world war, Mr. Schenck was commissioned a captain in the signal corps and supervised the inspection of a great amount of material being manufactured for the government in the middle west.

◆

Death of Dwight Sumner Richardson

Dwight Sumner Richardson, former treasurer of Richardson and Boynton Co., New York City, died on October 10 at his home. Mr. Richardson, one of the four brothers who took over the direction of the company at the death of their father, its founder, in 1871, had been identified with the company in various divisions 55 years. His death came very peacefully after he had retired for the night. He was in his 80th year and it was only within the last year or two that he relinquished his business activity, but even up to within a few days of his death spent some time at his desk in the office each week. Mr. Richardson was the owner of numerous patents now in use in the heating industry. He had always taken a great amount of interest in the industry especially where its development and progress was concerned.

◆

Death of W. F. Harper

W. F. Harper, manufacturers' agent in St. Louis, Mo., died at his home in that city on October 10. Mr. Harper was the founder of the Duluth Plumbing Supplies Co., Duluth, Minn., and after disposing of this business in 1923 went to St. Louis, where he became manager of the L. Wolff Mfg. Co.'s branch. He remained in that position until a few years ago when he became a manufacturers' agent.

Business Personals

HOWARD COONLEY, president of the Walworth Company, Boston, Mass., has been elected vice president of the Board of Trustees of Boston University to succeed William E. Nickerson.

JAMES A. BYRNE has been appointed eastern sales manager for J. B. Wise, Inc., of Watertown, N. Y. His headquarters will be at 719 Liggett building, 41 East Forty-second street, New York City, and his territory will include the New England and middle Atlantic states. Mr. Byrne became affiliated with J. B. Wise, Inc., early in 1925, covering Long Island, New York State to Albany and northern New Jersey.

EDWARD BLAKE has become affiliated with the Trimont Mfg. Co., in the capacity of general manager, according to announcement from the board of directors.

E. G. HEDGES, president of Hedges & Brother, Newark, N. J., is on an extended motor tour of the eastern states.

MARTIN F. PILGER, who for a number of years was with the Lambertville Pottery Co., has become connected with Fords Porcelain Works, Perth Amboy, N. J. Mr. Pilger, with offices at 136-138 South Fourth street, Philadelphia, Pa., is in charge of that territory.

FRANK M. WILCOX and JOHN N. REID, formerly connected with the New York City office of Josam Mfg. Co., have returned to Atlanta, Ga., where they have established themselves as manufacturers' representatives handling plumbing specialties. Offices have been opened in the Bona Allen building, Atlanta, and the firm is operating under the name of Wilcox and Reid. Both Mr. Wilcox and Mr. Reid are well known in the southern territory.

J. L. STULSAFT, 501 Fifth avenue, New York City, is handling the products of the Jenkins Mfg. Co., Bloomfield, N. J. Mr. Stulsaft is representing the company in the metropolitan New York district and in the state of Connecticut.

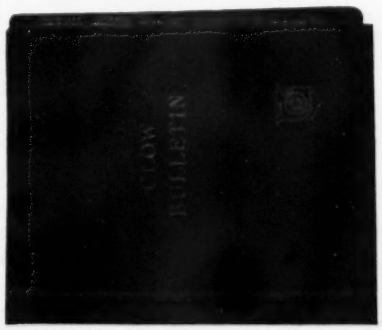
G. C. SPAULDING has recently been appointed southern district engineer with the Grinnell Company in San Francisco, his headquarters being situated at Fifth and Brannen streets. For the past twelve years Mr. Spaulding has been associated with the American Radiator Company in Seattle, Washington, in a similar capacity. His new work consists of general power plant engineering.

CHARLES A. CARPENTER, 1124 Park Building, Pittsburgh, Pa., has been appointed district representative of The Wickes Boiler Co., Saginaw, Mich., for their steel heating boilers.

W. S. STEWART has been appointed district manager in charge of the Cleveland territory for the Lincoln Electric Co., Cleveland, Ohio. His offices will be at the factory, Coit road and Kirby avenue. Mr. Stewart was formerly in charge of the Pacific Coast offices of the company, and before that was in the automatic arc welding department. Mr. Stewart is a graduate of Yale University.

More than 5000 plumbers hire this "never-wrong"

ESTIMATOR, INVENTORY TAKER, BUYER, INVOICE CHECKER



and pay only 83c per month

The big Clow Bulletin holds 450 pages of descriptions, illustrations, and prices on every modern plumbing appliance. Big index tabs show your thumb the sections—pronto.

Fixtures, pipe, fittings, etc., with their descriptions and prices are on the same page—for fast, sure reference.

Prompt supplementary sheets keep you up to the latest minute. Figure the help this book gives you by eliminating costly mistakes and speeding up Estimating — Inventory — Buying — Invoice Checking. 5000 master plumbers have used it for 15 years. Tear off the coupon right now—as hundreds of other wide-awake plumbers are doing.

Clow Bulletin
SUBSCRIPTION

Mail to
JAMES B. CLOW & SONS
201-299 N. Talman Ave., Chicago, Ill.

We hereby subscribe for the Clow Bulletin at the rate of 83 cents per month ($10.00 per year). Upon receipt of the Binder and Bulletin pages we agree to pay, at the monthly rate, the proper amount to carry our subscription until September 1st, and we further agree to pay thereafter the subscription price of this Service ($10.00) annually in advance.

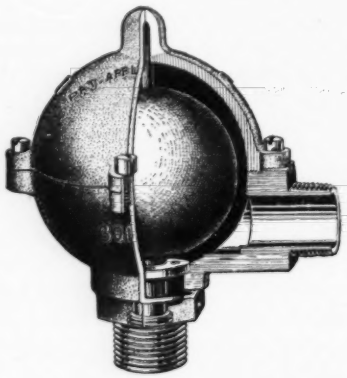
And we further agree that the title of ownership to the Binder and Bulletin pages shall rest with James B. Clow & Sons and that upon our failure to renew our subscription at the end of any fiscal year (September 1st), or upon repayment to us by said James B. Clow & Sons at any time of the unearned portion of our subscription, we will surrender to said James B. Clow & Sons, or its authorized agent, the aforesaid Binder and Bulletin pages and this subscription shall be immediately terminated.

Nothing in this agreement shall obligate James B. Clow & Sons to publish or maintain the Clow Bulletin, the subject of this agreement, except that if the publication of the Clow Bulletin is discontinued after the receipt of our subscription, we shall be repaid the amount of the unearned portion of said subscription.

Name---------- *Address*----------

Date---------- 19---- *City*---------- *State*----------

Woodward-Wanger Co. Offers the Plumber an Increase in Business



Red Top Relief Valve

We are now the sole distributors for Red Top Relief Valves.

We have added this product to our line because it opens up new possibilities for profitable business for the Plumber. For safety's sake, every home where there is a hot water system should have a Red Top Relief Valve. Even if the hot water system is already equipped with a similar safety device, a Red Top should be installed because it provides positive, unfailing protection from destructive—and often death-dealing explosions.

Red Top Relief Valves always work. There are no springs, no levers, no diaphragms to get out of order. It is the only Relief Valve approved by the Underwriters' Laboratories, America's foremost organization for testing safety appliances.

Red Top Valve installations offer you a liberal profit. Model No. 1 costs you $4.50 and has an average installation charge of $15.00. Allowing for labor costs, there is usually $7.50 profit for you. Model No. 2 costs $12.00, and $25.00 to $30.00 is usually charged for installation.

The coupon below will bring you complete information on this profit making item.

Woodward-Wanger Co.,
1106 Spring Garden Street, Philadelphia, Pa.

Please send me full particulars on Red Top Relief Valves and how they mean real profits for me.

Name.....

Address.....

City.....

New Jersey Golfers Play Blue Hills Club

The regular meet of the Plumbing and Heating Trades Golf Association of New Jersey was held September 16 at Blue Hills Country Club, Orangeburg, N. Y. The beauty and trickiness of the course made scoring unusually high and everybody assured host Ed Teller that his course was one of the best and most enjoyable played during the season. In the absence of the president and vice president, S. H. Blackwood presided at the meeting after dinner when the prizes were distributed.

Earl H. Fiigon won the Fred Engelberger trophy with the low net of 65 and E. M. Robinson with his card of 74 net received a sweater as first prize. E. B. Moore was awarded four balls as third with a net 80 while Mr. Engelberger carried off three balls with a net 84, all in Class A. In Class B Mr. Fiigon's 65 also earned for him a sweater while K. M. Cosgrove with a net 74 was presented with four balls as second prize. The net card of 75 turned in by H. S. Officer drew for him third prize of three balls and T. P. Layer was awarded two balls as fourth for his net 76. Fifth and sixth prizes of one ball each went to S. H. Blackwood and T. Reichmann, whose respective net scores were 77 and 84.

Convention Dates

January 20, 21, and 22, 1931—ILLINOIS—The annual convention of the Illinois Master Plumbers' Association, to be held at Danville, with headquarters at the Wolford hotel.

January 27, 28 and 29, 1931—A. S. H. V. E.—The annual meeting of the American Society of Heating and Ventilating Engineers, to be held at the William Penn Hotel, Pittsburgh.

February 3, 4 and 5, 1931—OHIO—Thirty-ninth annual convention of the Ohio State Association of Master Plumbers, to be held at Canton, Ohio.

March 16 and 17, 1931—KANSAS—The annual convention of the Kansas Master Plumbers' Association, to be held in Iola, with headquarters at the Kelly hotel.

April 13 to 18, 1931.—A. O. B.—The eighth annual convention and oil burner show of The American Oil Burner Association, to be held in Philadelphia, Pa., with convention headquarters at the Benjamin Franklin Hotel. The oil burner show will be held on the exhibit floor of the Gimbel Building.

April 21, 22 and 23, 1931—TEXAS—The annual convention of The Associated Master Plumbers of Texas, to be held at Houston at the Rice Hotel.

May 11, 12 and 13, 1931—N. P. S. A.—The convention of the National Pipe & Supplies Association to be held at Cleveland, Ohio, with headquarters at the Hotel Hollenden.

June 23, 24 and 25, 1931—N. A. M. P.—The forty-ninth annual convention of the National Association of Master Plumbers, at Milwaukee, Wis.

COMING TRADE EVENTS

November 8, 1930—The annual dinner dance of the Jobbers' Credit Association, Inc., New York City, to be held in the grand ballroom of the Hotel Commodore.

November 12, 13 and 14, 1930.—The thirty-first annual convention of the International Acetylene Association to be held in the Congress Hotel, Chicago, Ill.

November 18, 1930—New England Heating Trades Golf Association. Regular tournament at Unicorn Country Club, Stoneham, Mass.

January 5, 6 and 7, 1931.—The ninth annual conference of presidents and secretaries of state and local master plumbers' associations, and of state and local heating and piping contractors' associations, to be held at the Congress Hotel, Chicago.

February 10 to 14, 1931—The fifth Midwestern Engineering and Power Exposition, to be held at the Coliseum, Chicago.

June 22 to 25, 1931—The exhibition in connection with the forty-ninth annual convention of the National Association of Master Plumbers, to be held at Milwaukee, Wis.

THE TRADE
News of Plumbing and Heating Contractors

Set Dates for National Convention

Dates have been set for the 49th annual convention of the National Association of Master Plumbers. The directors chose June 23, 24 and 25 for the convention, while the exhibition will begin June 22. The convention will be at Milwaukee, Wisc.

◆

Master Plumbers' National Officers Meet at Milwaukee

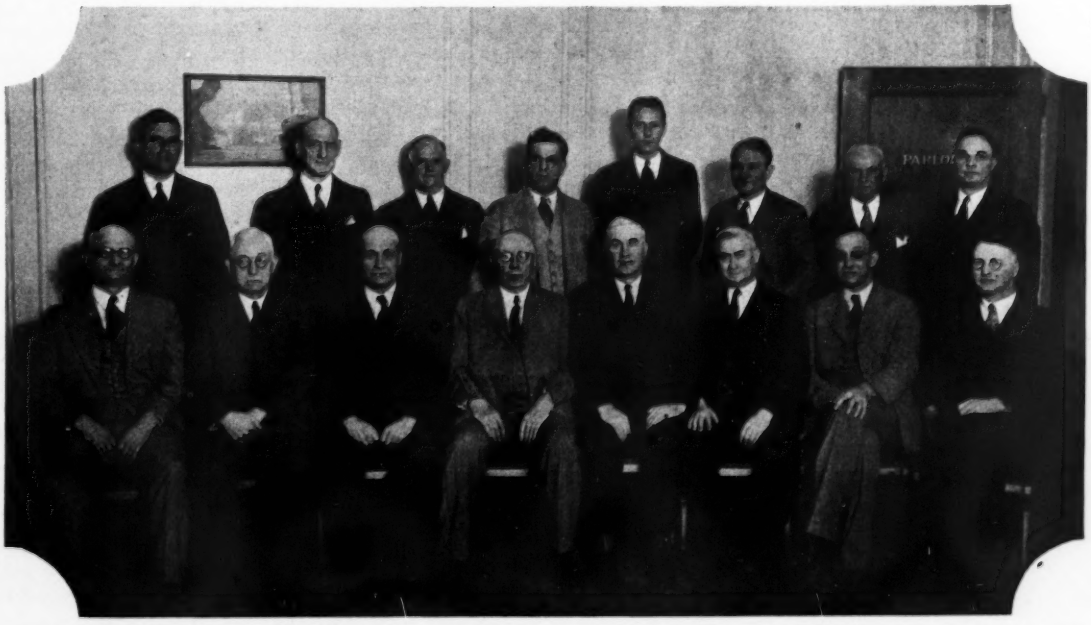
The first meeting of the board of directors of the National Association of Master Plumbers during the administration of President George H. Drake was held at Milwaukee, Wis., October 20-22. All of the officers and directors, several of the committee chairmen and members of the Milwaukee and convention committees were present.

The following articles report on the decisions with regard to the 1931 convention. The article beginning on page 65 of this issue throws an interesting side light on what is done at such meetings. The directors also took up the reports of the various special committees. Following the business sessions, the officers and guests were entertained by the Milwaukee association and by the Plumbing and Heating Club.

◆

Make Early and Complete Plans for Milwaukee Convention

Establishing a record for accomplishment in making preliminary arrangements, the national convention and exposition committee met in Milwaukee Oct. 20 and 21, at the time of the meeting of the board of directors of the National Association of Master Plumbers, and obtained from the National Board their approval for a complete program covering the forty-ninth annual convention, to be held in Milwaukee in June, 1931. It was not only the earliest of the national gatherings, where definite plans for the convention and exposition were determined, but it was, also, one of the largest and most successful meetings of its kind and promises one of the greatest gatherings, in Milwaukee next year, in the history of the National Association.



Front row, left to right: Charles Pelunek, Jacob Schuh, both of Milwaukee; George H. Drake, Buffalo; F. C. Kuetemeyer, Milwaukee, general chairman; P. W. Donoghue, Boston; George W. Frank, Buffalo; Lewis R. Friend, Milwaukee; Joseph Wittig, Milwaukee. Back row, left to right: C. W. Wanger, Philadelphia; Thomas F. Nolan, Albany; Joseph J. Crotty, New York; Charles B. Nash, Pittsburgh; W. F. Selsemeyer, Kohler, Wis.; John J. Vogelpohl, Cincinnati; W. K. Glen, Chicago; and R. H. Mattison, Milwaukee, all of convention committee.

Members were present from every part of the United States and were enthusiastic over the preliminary work done by the Milwaukee members of the national convention and exposition committee, and over the exceptional facilities, which they found in Milwaukee, for holding the master plumbers' convention, the women's auxiliary convention and the national exposition of plumbing, heating and allied products. The national officers stated that, to the best of their recollection, the facilities in Milwaukee, for the holding of the exposition and convention

Facts About the 1931 National Convention

City—Milwaukee, Wis.
Dates—June 23, 24 and 25
Headquarters—Schroeder Hotel
Exposition Dates—
June 22, 23, 24 and 25
Place of Exposition—
Milwaukee Auditorium

sessions, surpassed anything previously utilized by the national organization.

The following was prepared by the committee:

Owing to these superior facilities and the fact that Milwaukee is most favorably located geographically, to draw attendance and exhibits from all parts of the United States, it was the consensus of opinion, that next year's gathering in Milwaukee will be the greatest ever held, not only from the standpoint of the delegates to the master plumbers and auxiliary conventions, but also from the standpoint of the manufacturers, who are exhibiting their products to the delegates, guests and the public.

The convention and exposition committee met at the Hotel Schroeder Monday, Oct. 20, with the following present: National President George H. Drake, Buffalo, N. Y.; National Vice President P. W. Donoghue, Boston, Mass.; Chairman F. C. Kuetemeyer, Milwaukee, Wisc.; Messrs. Joseph J. Crotty, New York City; Lewis R. Friend, Milwaukee; W. K. Glen, Chicago; William F. Selsemeyer, Kohler, Wis. (representing Walter J. Kohler, Jr.); Charles B. Nash, Pittsburgh, Pa.; Thomas F. Nolan, Albany, N. Y.; Charles Pelunek, and Jacob Schuh, Milwaukee; C. W. Wanger, Philadelphia, and Joseph Wittig, Milwaukee.

The committee was in session until late Monday night and again on Tuesday morning, making a final report to the board of directors, through Chairman Kuetemeyer, shortly after noon on Tuesday. The report was unanimously approved by the board and the Milwaukee members of the committee received many compliments for the energetic and efficient work which they had done in formulating the tentative plans, prior to the meeting of the national committee, where the policies were discussed and crystallized, and the complete program outlined.

This program provides for holding the national convention on Tuesday, Wednesday and Thursday—June 23, 24 and 25, 1931—in the Milwaukee Auditorium; the holding of the Women's Auxiliary meetings Tuesday, June 23 and Thursday, June 25 at the headquarters hotel; and the holding of the exposition June 22, 23, 24 and 25, 1931, in the arena of the Auditorium, one of the most magnificent convention and exposition halls in the United States.

It is expected that the convention sessions will follow the plan adopted in Buffalo and Boston, opening at 10:00 o'clock in the morning, in Plankinton Hall of the Auditorium, having a single session daily, lasting until 2:00 P. M. and then, after an hour for refreshment, there will be meetings under the auspices of the sales promotion committee, headed by Chairman C. W. Wanger; these meetings to be held in Plankinton Hall, at which time special educational features will be emphasized.

The convention and exposition will be under one roof, and the entrance so arranged that all convention attendants will pass through the exposition hall, going to and from the convention sessions.

Plankinton Hall, where the convention sessions will be held, is one of the most perfect halls, from an acoustic point of view, that could be devised and will add much to the enjoyment of the sessions, because of the ability to be heard clearly from one corner of the hall to the other, without raising the voice.

The arena, where the exposition will be held, provides a beautiful space 220 feet long by 100 feet wide, without a pillar or post in it.

It is the plan of the committee to sell a limited number of booths in the arena, probably 125 in all, and this space

Top row: Ed Goller and John Goller of Lawrence, Mass.; H. H. Sparks, Miss Mildred Keohane, Miss Agnes Yukon and Mrs. F. Adams, all of Atlantic City, N. J.; Mr. and Mrs. W. H. Franklin, Merrimac, Mass.; William Evans, Jr., plumbing inspector, Lebanon, Pa.; M. Horowitz, Brooklyn, N. Y.; F. W. Hoffman and Andrew Prentice, of East Orange, N. J. Bottom row: Mrs. Edw. Pickering and Mr. and Mrs. Rudolf Kollin of Cleveland, Ohio; Mrs. and Mr. J. A. Kiesling, Houston, Tex.; H. D. Elliott, New Bedford, Mass.; O. F. Kohl, Minneapolis, Minn.; C. Werner, A. C. Krieger, past state president, and H. Bunker, all of Union City, N. J.; Jacob Bugger, Philadelphia; John P. Heintz and George Heintz of Chicago. Photos taken at Boston convention, N. A. M. P.

Martin F. Pigler, Lambertville, N. J.; A. J. White, Paterson, N. J.; Edw. Frank, Cincinnati, Ohio; William G. Bergner, Granite City, Ill.; J. A. Gallivan, Muncie, Ind.; C. B. Connelley, dean of engineering department, Carnegie Institute of Technology, Pittsburgh, Pa. Photos taken at Boston convention, N. A. M. P.

will go on the market just as soon as final details, regarding booth layout, construction and prices are determined and the prospectus issued. After the space in the arena is sold, if there is a demand by manufacturers for additional booths, the committee has in mind utilizing Juneau and Kilbourn halls, on the same floor as the arena and connected by wide corridors, which halls will provide amply for as many manufacturers as wish to participate in the Milwaukee gathering.

The committee decided not to invite any manufacturers to send their bands to Milwaukee, owing to the heavy expenditure in transportation and hotel accommodations, which this requires. It is expected that a number of the larger manufacturers will participate in the entertainment features at the convention, in lieu of this band expenditure.

Among the many decisions of the committee, of importance to the exhibitors, was the one to have all of the entertainment features in the evening, aside from the receptions and balls at the headquarters hotel, held in the Auditorium, thus bringing the delegates and guests in contact with the exhibitors, not only throughout the daytime, but in the evening as well.

It is planned to hold in Mechanics' Hall, under the arena, on Tuesday evening, June 23, an entertainment for both men and women, consisting of a variety of amusement features and termed a "County Fair Night." It is planned to hold, in the same hall, on Wednesday evening, June 24, an entertainment for both men and women, to be known as "Old Heidelberg" night.

There will, in addition, be a luncheon for the women at the headquarters hotel Tuesday noon, and a motor trip over Milwaukee's beautiful drives, with a luncheon and card party at one of the numerous country clubs on Wednesday.

The committee recommended that the Hotel Schroeder be made the hotel headquarters, and that there be held there Monday evening a reception by the officers of the National Association and the Women's Auxiliary, followed by a dance, and that the President's reception and ball, on Thursday evening, be also held at the Schroeder.

The plans of the sales promotion committee, which held a number of sessions, include a special campaign in connection with the display windows of the Milwaukee shops, as well as downtown merchants' windows, wherein are to be shown attractive plumbing and other fixtures, all with the idea of making the Milwaukee public "plumbing conscious." Their plans also contemplate an effort to have the week of June 22 set aside as a Health and Sanitation Week, not only in the city of Milwaukee, but also throughout the state of Wisconsin.

There will be an effective publicity campaign waged to interest the public in the utilization of modern plumbing and heating equipment, and also to attract them to the exposition of these products at the Auditorium during that week.

In addition, the sales promotion committee plans to have speakers of international reputation participate in the sessions on Tuesday and Wednesday, and discuss matters of vital importance and interest to every master plumber in attendance at the gathering. The names of the speakers and further details of the program will be announced, as soon as the arrangements are made.

In connection with the campaign, among the Milwaukee master plumbers, to dress up their shops, and attract public interest in their show windows, the committee has been assured of the co-operation of the local association and its assistant secretary, Peter J. King, and feels confident that results will be accomplished along these lines.

◆

President Drake Names Sales Promotion Committee

President George H. Drake of the National Association of Master Plumbers has announced the personnel of the sales promotion committee, which will work in conjunction with the national convention and exposition committee, headed by Chairman F. C. Kuetemeyer of Milwaukee, on the program for the national convention in 1931. The work of this committee will be presenting a program to help the master plumber increase his business, through the sale of more goods, and will provide one of the features of the 49th annual convention.

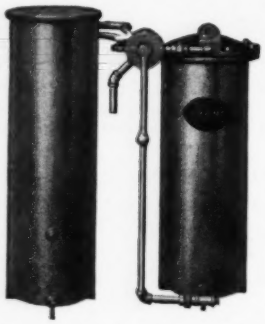
The sales promotion committee takes the place of what has been known, for the last two years, as the special educational committee. This committee was first appointed in 1928 and presented a program at the 47th annual convention in Buffalo in 1929. There was, also, a special educational committee program presented at the 48th annual convention and exposition held in Boston last June. In both instances the leadership of this committee was taken by C. W. Wanger of Philadelphia, who acted as chairman. He is also at the head of the committee appointed by President Drake, the members of which follow:

C. W. Wanger, chairman, Woodward-Wanger Co., Philadelphia, Pa.; Russell G. Creviston, Crane Co., Chicago; W. K. Glen, Crane Co., Chicago; E. L. Penfrase, Josam Mfg. Co., Cleveland, Ohio; Walter Kohler, Jr., Kohler Co., Kohler, Wis.; E. L. Flentje, Plumbing & Heating Industries Bureau, Chicago; Charles M. Swinnerton, 109 So. Broadway, Los Angeles, Calif.; John J. Vogelpohl, 1646 Hoffner St., Cincinnati, Ohio; A. B. Dibble, 525 Grand Avenue, New Haven, Conn.; Charles B. Nash, Standard Sanitary Mfg. Co., Pittsburgh, Pa.

1855 SEVENTY-FIFTH ANNIVERSARY 1930

Building future sales in the growing water softener market

Water softeners are steadily changing from the specialty to the necessity class. There are two reasons — the public is learning that it costs considerably less to soften water than to pay for the harm hard water does — and with the perfection of **CRANE-WARLO**, water softeners have become truly practical.



Crane-Warlo Semi-Automatic Softener, SA-22 supplies the soft water needs of an average family with only a few minutes attention a month

Built in hand-operated, semi-automatic, and completely automatic styles—engineered with all the skill Crane Co. has acquired in its 75 years of experience — utilizing an exclusive mineral which makes possible heretofore unheard of ratings — and sold under the Crane Budget Plan, this softener is years in advance of others.

Sell it . . . install it . . . **CRANE-WARLO** unquestioned dependability will establish you in this growing and profitable field.

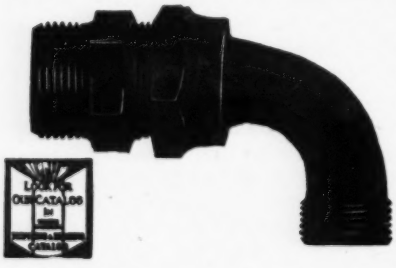
CRANE

CRANE CO., GENERAL OFFICES: 836 S. MICHIGAN AVE., CHICAGO
NEW YORK OFFICES: 23 WEST 44TH STREET

Branches and Sales Offices in One Hundred and Ninety-six Cities

TRENTON BRASS PRODUCTS

ASK YOUR JOBBER



Almost every jobber stocks this old, reliable line. He knows the value of selling equipment that is bound to give satisfaction wherever used.

TRENTON BRASS & MACHINE CO.
Trenton, New Jersey
Represented by ROLLIN C. WILSON
7E. 42nd St., New York, N. Y 261 Franklin St., Boston, Mass.
457 N. Broad Street, Elizabeth, New Jersey

Texas Sets Convention Dates

The Associated Master Plumbers of Texas will meet at Houston for their annual convention next year on April 21, 22 and 23. Headquarters will be at the Rice Hotel.

◆

New Plumbing Ordinance Considered at Ogden

A new and stronger plumbing ordinance is now before the city commission of Ogden, Utah, according to W. A. Rupea, secretary-manager of the Utah State Association of Sanitary and Heating Engineers, with headquarters at 501 Hooper Building, Salt Lake City.

In addition to strengthening generally the requirements of workmanship, as compared to the existing ordinance, the proposed statute provides for a license fee of $100, payable in advance for the calendar year, instead of present charge of $25, paid quarterly.

One of the principal objections to the present fee is that it allows any plumber to take out a three months license upon payment of $6.25 for the primary purpose of doing one or a few jobs, said Mr. Rupea.

What You Find When Officers of Master Plumbers Meet

(Continued from Page 66)

completion at Boston this year, and with the first group of students already graduated from Carnegie Institute of Technology, that program requires less attention.

THE exhibition now held at the time of the convention has grown to such proportions that it requires more and more of the directors' time. To Milwaukee it brought not only the contractors but selected representatives of manufacturers in order that a decision could be reached on every question which comes up in handling a hundred or more exhibits and thousands of exhibitors, guests and delegates.

VICE PRESIDENT DONOGHUE told the Milwaukee committees something of the size of the job they are undertaking for the 1931 convention and exhibition. He called their attention to the fact that 242 men in Boston and its vicinity served on the committees needed to handle that meeting. They had the help of 73 women, a total of 315 men and women. A total of $80,000 to $90,000 must be raised to put on the exhibition. About 30,000 guests at one time or another will review the exhibition. At Boston, wholesalers raised almost $8,000 to advertise the convention in that city. A social organization of those in the plumbing and heating business at Boston had $2,200 in its treasury and gave the entire sum for entertainment.

THE above figures, given by Mr. Donoghue, afford a picture of the size to which the exhibition part of the national meetings has grown. Only a few years ago, these exhibitions were handled by the local association in the town where the convention was held. Since the National association took over the direction of the exhibition in 1926, it has become a much larger part of these annual gatherings.

Illinois Chapter, A. S. H. V. E. Holds Meeting

The annual meeting of the Illinois Chapter of the American Society of Heating and Ventilating Engineers was held in Chicago on October 13. The secretary's report giving a resume of the activities of the 1929-1930 season brought out the interesting point that an average attendance of 94 was maintained throughout the season. The membership at the close of the season was 181.

The officers elected for the new year are as follows: A. G. Sutcliffe, president; J. J. Aberly, vice president; C. W. DeLand, secretary; C. W. Johnson, treasurer; H. P. Reid, R. B. Hayward, H. G. Thomas, members of board of governors.

L. A. Harding, president of the parent organization, spoke on "Utilization of the Sun's Energy" giving an outline of man's attempts to harness it. Later in the evening, F. C. Houghten, director of the society's research laboratory, spoke on "The Effect of Solar Radiation on Heating and Air Conditioning Problems."

A. V. Hutchinson, secretary of the society and C. W. Farrar, treasurer, were also present and were introduced, Mr. Hutchinson speaking on the January convention to be held in Pittsburgh and Mr. Farrar speaking on increase in membership.

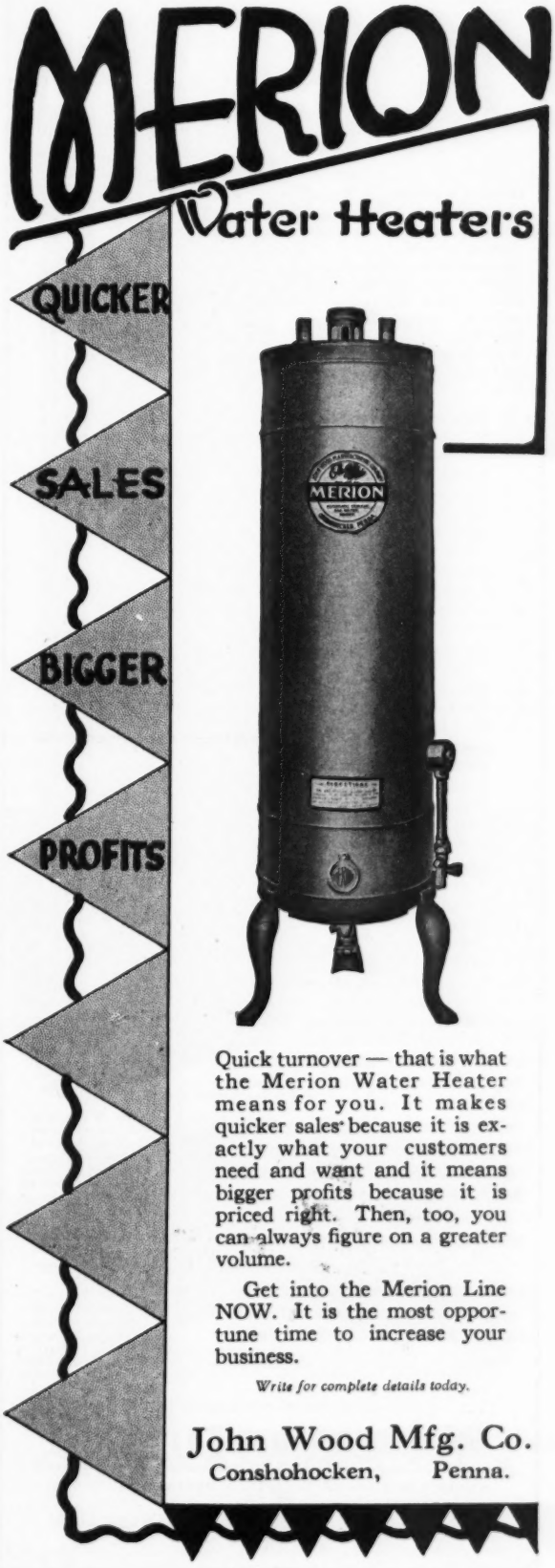
◆

Connecticut Plumbing and Heating Trades Golf Association Has Successful October Meet

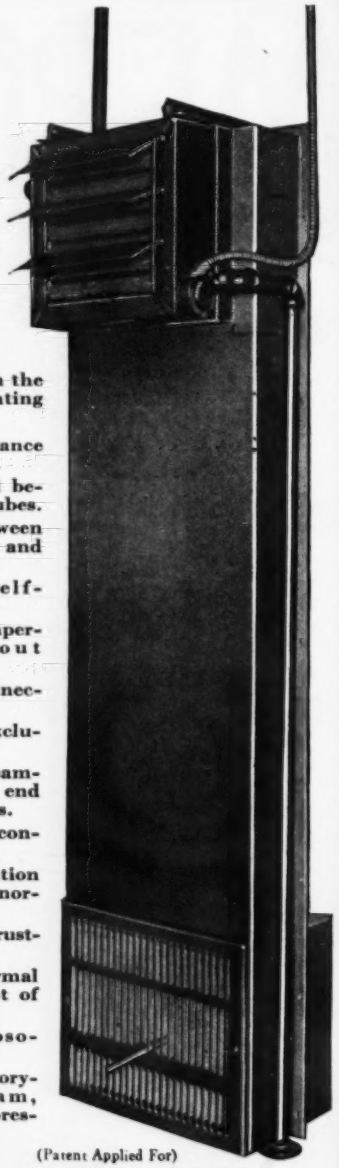
The Connecticut Plumbing and Heating Trades Golf Association held its October meet at the Middletown Country Club, Middletown, Conn., October 16, with over 60 in attendance. The tournament committee is to be congratulated for picking that date, which was a beautiful day and thoroughly enjoyed. Following the dinner President F. E. Doyle suggested a rising vote of thanks be extended to P. J. Brown, who was host. He was followed by Secretary and Treasurer E. O. Nelson, who stated that out of a membership of 60 there were over 60 in attendance, including 13 guests. He suggested that they have an annual meeting some time during the winter for the election of officers and to discuss the program for the coming year. President Doyle then stated that next year they hoped to have at least six tournaments and appointed a nominating committee, which was also to function as an arrangement committee for the annual meeting, to consist of P. J. Brown, T. H. Dawson and W. B. Duffy. Captain Morris K. Blackwell explained his method of handicapping and said that all handicaps would be changed every third tournament. Following this President Doyle announced the prize winners and Captain Blackwell distributed the prizes.

In handicaps 1-20, W. J. Osborn won the first low gross with an 86 and was awarded six silver goblets. H. D. Williams, with a net 73, won the low net and was awarded a cigarette vender. Second low gross was won by Everett Japp with an 88 and he received an electric clock. Second low net was won by P. Taylor with a net 76 and he received a polar mixer. Third low gross was won by J. F. Greer with a 91 and he was awarded an auto-mirror and clock; the third low net was won by R. Handy, net 78, who received a golfer's belt.

In handicaps 21-30, first low gross was won by C. W.


MERION
Water Heaters
QUICKER
SALES
BIGGER
PROFITS
MERION
Quick turnover — that is what the Merion Water Heater means for you. It makes quicker sales because it is exactly what your customers need and want and it means bigger profits because it is priced right. Then, too, you can always figure on a greater volume.
Get into the Merion Line NOW. It is the most opportune time to increase your business.
Write for complete details today.
John Wood Mfg. Co.
Conshohocken, Penna.

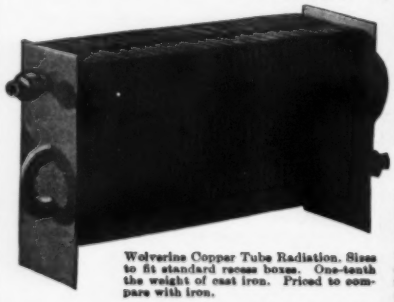
Three in One



Here is a combination of heating, ventilating and air cleaning. Wolverine engineers have built into it the fourteen basic points which are the foundation of Wolverine success in the heating and ventilating field.

1. Minimum resistance to air flow.
2. Maximum bond between fins and tubes.
3. Perfect ratio between fin area, air flow and tube capacity.
4. Completely self-draining tubes.
5. Uniform fin temperature—without "cool" spots.
6. Bronze end connections only.
7. Silver solder exclusively.
8. Single length seamless tubing from end to end—no joints.
9. Perfectly rigid construction.
10. Standard production models for every normal use.
11. Freeze-proof and rust-proof.
12. Exceptional thermal capacity per foot of area.
13. Guaranteed absolutely as rated.
14. Completely factory-tested for steam, water and vapor pressures.

(Patent Applied For)



Wolverine Copper Tube Radiation. Sizes to fit standard recess boxes. One-tenth the weight of cast iron. Priced to compare with iron.

This Wolverine Cabinet Unit Heater is estimated to cost less than one dollar per foot of radiation. It is adaptable to every type of building or space.

Send For

Complete technical data, terms, guarantees, commissions and prices. A new special portfolio is ready to mail to you.

Agents in all principal cities

WOLVERINE TUBE CO.

SEAMLESS COPPER BRASS & ALUMINUM

1413 Central Ave. Detroit, Mich.

Stewart with a 98, who was awarded a flower vase. First low net went to George Cornell with a net 73 and he received a sweater and socks. F. J. Klett won second low gross with a 101 and he received a motovox. C. J. Leroux, with a net 75, won second low net and his prize was a bridge scroll. Third low gross went to W. D. Pinkham with a 101 and he received a silver match box, and third low net was won by W. G. Burrell with a net 77, who received a golfer's belt.

In handicaps 31-40, R. E. Douglas won first low gross with a 105 and received a wall clock. J. Lockhart won first low net with a net 75 and was awarded golf hose. Second low gross was won by C. A. Vanderman with a 108 and he received an auto-calendar. Second low net went to A. E. Russell with a net 77 and his prize was a cigar box. T. H. Dawson won third low gross with a 114 and received an ash tray, and third low net went to J. H. Allen, with a net 78, who received a golfer's belt.

F. J. Daly, a guest, won drinking cups in a tube for his first low gross of 82, and A. Mazza, also a guest, won a flashlight as a prize for his second low gross of 91.

Following are the scores for the day:

	G.	H.	N.
(1-20)			
M. K. Blackwell..	94	11	83
J. R. Burns.....	94	15	79
G. H. Granie.....	93	10	83
J. F. Green.....	91	16	75
F. E. Doyle.....102		16	86
E. Japp	88	7	81
H. D. Williams..	91	18	73

	G.	H.	N.
(1-20)			
W. B. Duffy.....108		18	90
R. Handy	98	20	78
W. Hoyt 110		20	90
P. Taylor	95	19	76
W. J. Osborn.....	86	12	74
R. E. Lund.....	99	20	79

	G.	H.	N.
(21-30)			
E. R. Clement...113		21	92
E. O. Nelson.....109		27	82
G. Cornell	99	26	73
F. S. Fierberg...101		21	80
L. Finch 109		25	84
H. H. Iffland.....106		24	82
J. R. Murphy....115		28	87

	G.	H.	N.
(21-30)			
C. W. Stewart....	98	25	73
F. J. Klett.....101		28	73
W. G. Burrell....102		25	77
V. H. Kincaid....117		30	87
W. D. Pinkham..101		25	76
H. S. Ortgies....105		25	80
C. J. Leroux.....102		27	75

	G.	H.	N.
(31-40)			
A. E. Russell....117		40	77
H. E. Coe.....134		40	94
P. J. Brown.....136		40	96
J. Lockhart 109		34	75
A. M. Punzelt....135		36	99
A. F. Downe.....151		40	111
R. E. Douglas...105		35	70

	G.	H.	N.
(31-40)			
J. J. McCarthy...120		34	86
H. N. Wilson.....139		40	99
T. H. Dawson....114		32	82
J. H. Allen.....118		40	78
P. J. Lamneux...138		39	99
C. A. Vanderman.108		31	77

Guests

	Gross		Gross
R. W. Burwell.....110		H. N. Booth.....	97
P. H. Hawley.....	96	E. F. Conroy.....112	
G. F. Foote.....122		G. Nairn 117	
J. J. Cottar.....100		A. Mazza	91
J. Lanigan 109		F. J. Daly.....	82
J. Ryan	99	Ben Lyon 133	

◆

Death of James Armstrong

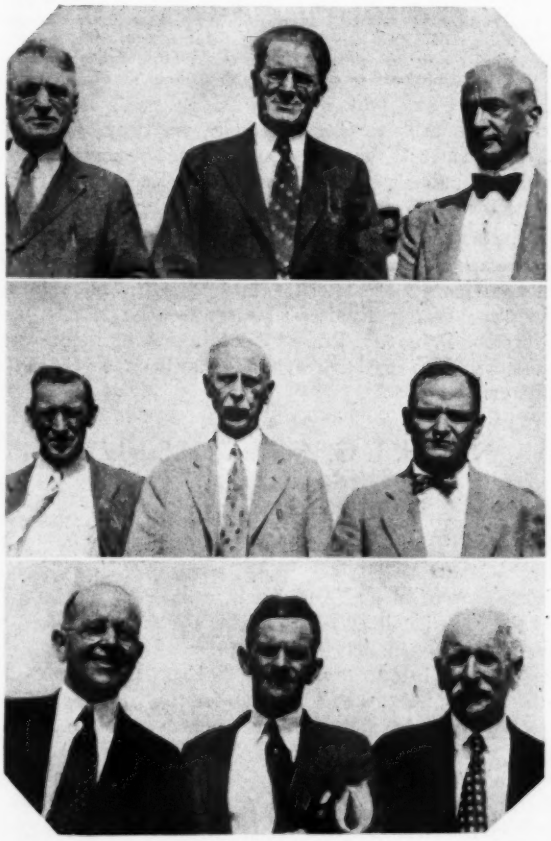
James Armstrong, prominent New York City Master plumber, died October 9 following an operation early in September. Mr. Armstrong was president of the James Armstrong Co., which was founded by his father in 1850. After his father's death in 1905, he and his two brothers, Charles A. and Edward T., vice president and secretary-treasurer, respectively, conducted the business. The firm made the plumbing installations in some of the largest and most prominent of New York City skyscrapers, specializing in hotel work. Mr. Armstrong was in his 69th year and, besides his two brothers, is survived by his wife. Burial on October 11 was made in Greenwood cemetery, Brooklyn, N. Y.

Philadelphia Masters Visit Sewage Disposal Plants

The city of Philadelphia, Pa., had as guests on a trip to its sewage disposal and filtration plants 225 members of the Master Plumbers' Association of that city. The trip, which was made aboard the steamboat Ashbridge, leaving the foot of Market street on September 17, entailed a sail of approximately thirty-five miles up the Delaware river. The first stop was at the gigantic Northeast Sewage Treatment Works, covering an area of 160 acres, at Richmond street and Wheatsheaf lane on the outskirts of the city.

After inspecting the vast plant with its coarse screens, grit inceptors, sedimentation beds, bacterial digestive Imhoff tanks geared at present to take care of sixty million gallons daily from a population of three hundred thousand persons and with a maximum capacity of two hundred and fifty million gallons daily from a population of a million and a quarter, the party re-embarked on the steamer for Torresdale, about eight miles further up the Delaware where the filtration plant is located.

Covering an even more extensive area, the water purification sheds were equally interesting to the visitors. A number of city officials met the party at this point,



Top row: Winfield S. Reed, supervising inspector of house drainage, Bureau of Health, Philadelphia; Frank W. Vaughan, sewer registrar, Bureau of Engineering; Chester Stuart, Registrar of Bureau of Water. Middle row: Daniel Whealin, Eugene Quinlan and Harold Asquith. Bottom row: M. J. Feeney, president, Philadelphia Association of Master Plumbers; H. M. Beaumont, assistant engineer, Philadelphia sewage disposal plant; William Boal, chairman of committee which arranged for the trip of the master plumbers to the plant

You Can't Go Wrong On Dehn Designed Equipment

In the PEERLESS Garage Drainage System, you'll find every point of thoroughness in design and construction that goes to make for the best and longest-lived service.

The PEERLESS was designed by George J. Dehn, S. E. to make your job of installation easiest and to make your customers sure of healthful surroundings in their garages.

New Number Thirty Catalog illustrating and describing some new and improved appliances upon request. Your jobber can supply you. "There are no substitutes equally as good."

COMPOUND INJECTOR & SPECIALTY CO.

Established 1897

GEORGE J. DEHN, S. E.
President

419-421 D N. Laramie Ave.
Chicago, Illinois

Originators, Designers and Sole Manufacturers of

DEHNSANIGARD
THE QUALITY GOODS
Trade Mark Registered

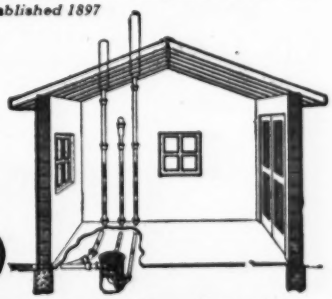
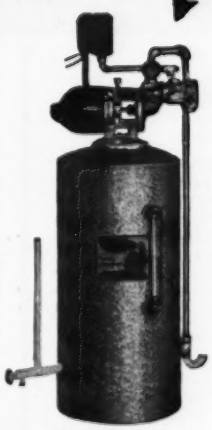


Fig. 62. PeerleS Garage Drainage System correctly installed. Patented.

BURKS SUPER-TURBINE PUMPS



SERIES 8750
HOME WATER
SYSTEM

SIMPLICITY OF CONSTRUCTION
With
Only one moving part!

Simplicity in design accounts for the high efficiency and long satisfactory life of the Burks Pump. It is the outstanding water pump today. Your request will bring to you an actual photograph of the Burks pump working on a

32 Foot Suction Lift

New Bulletins ready—send today for your copy. New Water System Bulletin No. 90. Also New Condensation Return Bulletin No. 91.

DECATUR PUMP COMPANY DECATUR ILLINOIS

Jarecki Valves

are Tested Under Pressure

Not satisfied with using only analysis-proved metals—with designs that were developed through 78 years of experience—Jarecki tests every Valve *under pressures considerably in excess of those it is to meet in service.*

You may specify Jarecki Valves with the assurance that the size and style you require is included in the Jarecki line.

Jarecki
MANUFACTURING COMPANY
ERIE, PA., U. S. A.

This free book will help build your profits

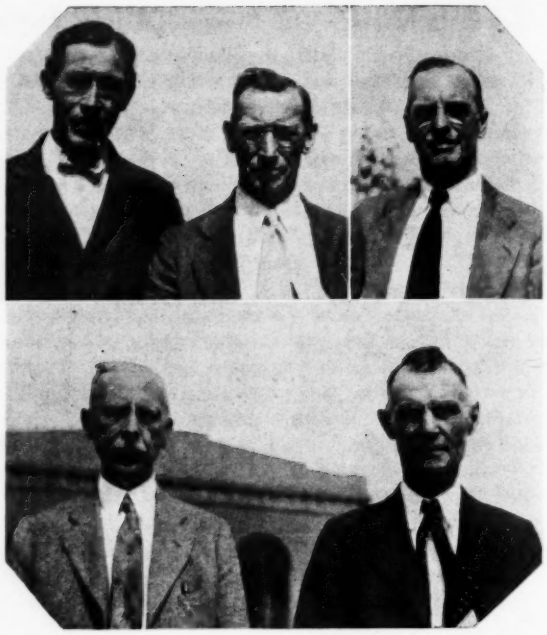
This free booklet points the way to increased profits thru better pipe tools—tools that pay dividends in time and energy saved, that lower tool costs by giving longer service, that make each day's accomplishment greater, more satisfying.

Catalog P-10 shows, describes and gives prices of the most extensive line of tools for work on pipe in sizes up to 2 inch. Each tool in this line, the ARMSTRONG BROS. line, is an improved tool designed after tests of other types and makes. Each is a clean cut, carefully made tool embodying an expertness developed thru over 39 years of advanced tool making. Each carries the Arm-and-Hammer Trade Mark, the symbol of a *Better* Pipe Tool.

Every pipe tool user should have a P-10 Catalog. Write for free copy today.

Armstrong Bros. Tool Co.
"The Tool Holder People"
323 N. Francisco Ave.
CHICAGO U. S. A.

ARMSTRONG BROS.



Top row: John J. Mitchell, Daniel Whealin and George M. Hicks. Bottom picture: Eugene Quinlan and John Seidel. Photos taken at the visit of the Philadelphia master plumbers to the sewage treatment plant

among whom were Chester Stuart, registrar of the bureau of water; Frank W. Vaughan, sewer registrar, bureau of engineering, and Winfield S. Reed, supervising inspector of house drainage, bureau of health.

The association committee comprising William Boal, chairman; President M. J. Feeney, ex officio; George F. Uber; George M. Hicks; Harry L. Stilwell; Harold Asquith; Walter Raid; Treasurer George Moeller and Secretary Robert H. Pflug-Felder, in making its preparations arranged to have a buffet luncheon served by a caterer.

◆

N. E. H. T. G. A. Meets at Sandy Burr Country Club

The New England Heating Trades Golf Association held its October meet on Tuesday, October 7, at Sandy Burr Country Club, Wayland, Mass. There was a good attendance of about forty members and guests, in spite of the fact that it was the day for the American Legion parade in Boston. The October tournament was featured as "the tombstone tournament." Each member, as he started from the first tee, was given a flag. By taking par of the course and adding each one's handicap, it gave each a total of the allowed number of strokes to be used. When each had used his allowed number, he planted his flag, noting thereon his name, his trial strokes taken, and just where placed. This method of play gave members who failed to win a prize during the year a much better opportunity to win. Prize winners were as follows, in the order named: J. F. Dwyer, Louis McCreary, G. K. Sauweine, Joseph Hern, W. G. O'Hare, Clint Bostwick, Walter Cousins, W. Buchanan, J. P. Dwyer and Ralph Franklin.

A steak dinner was served at 6:30. Following dinner, President Flint called upon J. P. Dwyer, Jr., to intro-

duce his guest, W. G. O'Hare, penal institutions commissioner of Boston. Mr. O'Hare gave a short address and expressed his pleasure in the good fellowship shown by the members of the association. Harry G. Dodge then introduced his guest, Frank Merrill, of French & Hubbard, architects and engineers of Boston, who gave a short address. T. P. Burns, guest of Thomas O'Callaghan, entertained the gathering with some of his witty stories. Among the cards turned in were:

	G.	H.	N.
W. H. Oleson	109	17	92
H. B. Buse	115	28	87
R. W. Williams	97	14	83
W. R. Illig	101	19	82
W. Buchanan	115	38	77
W. G. O'Hare (G.)	119	26	93
J. F. Dwyer	110	25	85
J. G. Ross	88	8	80
G. F. Elliott	103	18	85
F. T. Scott	107	17	90
R. S. Franklin	93	16	77
B. C. Dwyer (G.)	93	19	74
J. P. Dwyer	113	33	80
C. G. Bostwick	94	11	83
C. L. Flint	No Card		
H. G. Dodge	120	31	89
F. A. Merrill (G.)	102	16	86
A. C. Bartlett	100	16	84
M. R. Grover	106	25	81
G. K. Sauweine (G.)	134	40	94
R. Robertson	116	25	91
E. T. Keefe	No Card		
J. A. Traners (G.)	No Card		
F. M. Archer (G.)	No Card		
W. F. Hall	89	15	74
J. L. Hern	83	7	76
R. B. Williams	131	35	96
L. S McCreary	97	15	82
W. S. Cousins	107	21	86
T. O'Callaghan	101	25	76
F. P. Burns (G.)	129	30	99
C. G. Mealey (G.)	98	25	73
D. M. Davids (G.)	103	..	..
R. J. Shaw (G.)	99	30	69

Syracuse Association Holds Annual Clambake

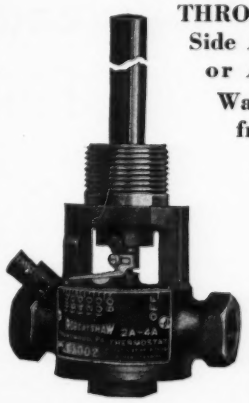
The annual clambake of the Syracuse Association of Master Plumbers was held at Hinerwadel's Grove near Syracuse, N. Y., recently.

Most of those attending the outing arrived by ten o'clock, at which time fresh clams and salt boiled potatoes were served. The big bake was served at about two o'clock. The afternoon was spent at baseball, horseshoe pitching and cards. The baseball game between The Hunting Co. and W. G. Shafer Co., Inc., was won by the Shafer team by a score of 5 to 3. The pitching of W. G. Shafer and the fielding of Tom Connor featured this affair. Charles Klein umpired the game in fine fashion. Supper was served early in the evening. Everyone agreed that the outing had been a big success. The committee in charge of the bake consisted of George L. Bauer, chairman, A. B. Cavanaugh, Frank Sheppard and Willard Spicer.

Top row: J. F. Guider, secretary of Syracuse Master Plumbers' association; J. S. Lunsford, Crane Co.; H. W. Goetting, F. W. Schiller, Charles Leiger, G. L. Biggs, A. M. Byers Co. Bottom row: J. Abt, W. M. Coling, T. F. Connor, J. P. Simon, W. F. Gooley and B. Joseph O'Donnell. Photos taken at the outing of the Syracuse association

There's a

ROBERTSHAW THERMOSTAT *for every* requirement

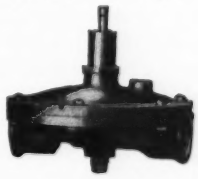


THROTTLING TYPE for Side Arm Water Heaters or Automatic Storage Water Heaters. All sizes from ⅜ to 2 inches.

Robertshaw Throttling Type Water Heater Thermostats are fully covered in CIRCULAR FORM R-4. Write for it!

SNAP-ACTION TYPE For Storage Water Heaters and Furnace and Boiler Temperature Control. Gas Pipe sizes from ½ to 2½ inches.

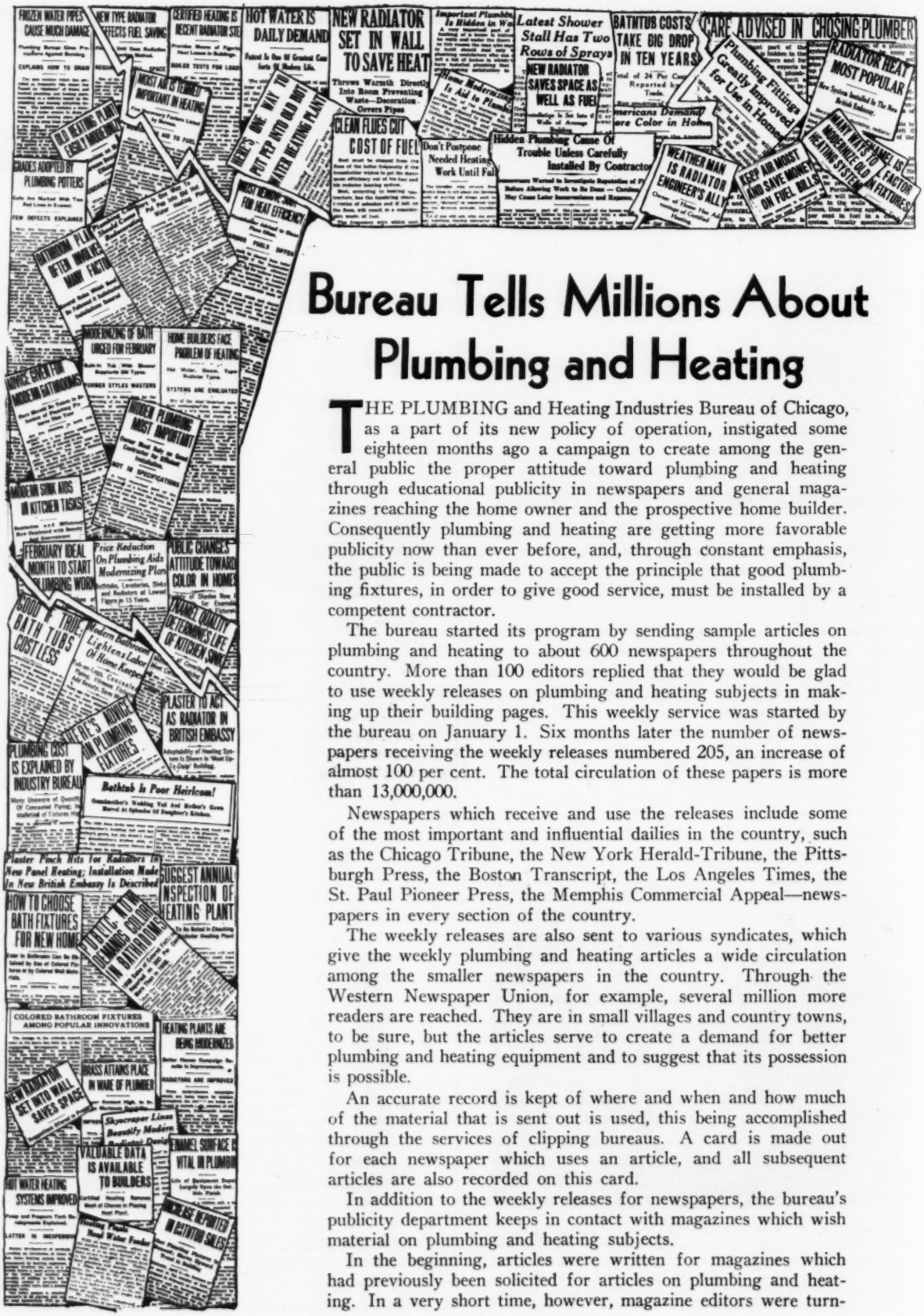
Robertshaw Snap-Action Thermostats are illustrated and described in CIRCULAR FORM R-1. Write for it!



Number 2GV for single unit circulator and garage heaters. Easily installed. Attractive in appearance. Gas pipe sizes from ½ to 1 inch. Robertshaw circulator and garage heater thermostats are fully described in number 2GV circular. Write for it! Write for any or all of the above circulars—they're free—no obligation involved.

ROBERTSHAW THERMOSTAT CO.

Youngwood, Pa.


FROZEN WATER PIPES CAUSE MUCH DAMAGE
NEW TYPE RADIATOR EFFECTS FUEL SAVING
CERTIFIED HEATING IS RECENT RADIATOR STE
HOT WATER IS DAILY DEMAND
NEW RADIATOR SET IN WALL TO SAVE HEAT
Thrown Warmth Directly Into Room Preventing Waste—Decoration Covers Pipes
Latest Shower Stall Has Two Rows of Sprays
BATHTUB COSTS TAKE BIG DROP IN TEN YEARS
CARE ADVISED IN CHOSING PLUMBER
Plumbing Fittings Greatly Improved for Use in Homes
RADIATOR HEAT MOST POPULAR
NEW RADIATOR SAVES SPACE AS WELL AS FUEL
MOST AIR IS TERMED IMPORTANT IN HEATING
OLD HEATING PLANT EASILY MODERNIZED
HERE'S ONE WAY TO PUT PEP INTO OLD HOT WATER HEATING PLANT
CLEAN FLUES CUT COST OF FUEL
Don't Postpone Needed Heating Work Until Fall
Hidden Plumbing Cause Of Trouble Unless Carefully Installed By Contractor
WEATHER MAN IS RADIATOR ENGINEER'S ALLY
KEEP AIR MOIST AND SAVE MONEY ON FUEL BILLS
WANT WATER TO MODERNIZE OLD HEATING SYSTEM
ENAMEL IS FACTOR IN FIXTURES
GRADES ADOPTED BY PLUMBING POTTERS
BATHROOM PLAN OFTEN INVOLVES MANY FICTIONS
MODERNIZING OF BATH URGED FOR FEBRUARY
HOME BUILDERS FACE PROBLEM OF HEATING
HIDDEN PLUMBING MOST IMPORTANT
NOVICE GREETED MODERN BATHROOMS
MODERN SINK AIDS IN KITCHEN TASKS
FEBRUARY IDEAL MONTH TO START PLUMBING WORK
Price Reduction On Plumbing Aids Modernizing Plans
PUBLIC CHANGES ATTITUDE TOWARD COLOR IN HOMES
ENAMEL QUALITY DETERMINES LIFE OF KITCHEN SINK
GOOD NEW TRUE BATH TUBS COST LESS
Modern Bathroom Lightens Labor Of Home Keeper
HERE'S NOVICE ON PLUMBING FIXTURES
PLASTER TO ACT AS RADIATOR IN BRITISH EMBASSY
PLUMBING COST IS EXPLAINED BY INDUSTRY BUREAU
Bathtub Is Poor Heirloom!
Plaster Pinch Hits For Radiators In New Panel Heating; Installation Made In New British Embassy Is Described
SUGGEST ANNUAL INSPECTION OF HEATING PLANT
HOW TO CHOOSE BATH FIXTURES FOR NEW HOME
PUBLIC NOW DEMANDS COLOR IN BATHROOMS
COLORED BATHROOM FIXTURES AMONG POPULAR INNOVATIONS
HEATING PLANTS ARE BEING MODERNIZED
NEW RADIATOR SET INTO WALL SAVES SPACE
BRASS ATTAINS PLACE IN WARE OF PLUMBER
Skyscraper Lines Beautify Modern
VALUABLE DATA IS AVAILABLE TO BUILDERS
ENAMEL SURFACE IS VITAL IN PLUMBI
HOT WATER HEATING SYSTEMS IMPROVED
INCREASE REPORTED IN BATHTUB SALES

Bureau Tells Millions About Plumbing and Heating

THE PLUMBING and Heating Industries Bureau of Chicago, as a part of its new policy of operation, instigated some eighteen months ago a campaign to create among the general public the proper attitude toward plumbing and heating through educational publicity in newspapers and general magazines reaching the home owner and the prospective home builder. Consequently plumbing and heating are getting more favorable publicity now than ever before, and, through constant emphasis, the public is being made to accept the principle that good plumbing fixtures, in order to give good service, must be installed by a competent contractor.

The bureau started its program by sending sample articles on plumbing and heating to about 600 newspapers throughout the country. More than 100 editors replied that they would be glad to use weekly releases on plumbing and heating subjects in making up their building pages. This weekly service was started by the bureau on January 1. Six months later the number of newspapers receiving the weekly releases numbered 205, an increase of almost 100 per cent. The total circulation of these papers is more than 13,000,000.

Newspapers which receive and use the releases include some of the most important and influential dailies in the country, such as the Chicago Tribune, the New York Herald-Tribune, the Pittsburgh Press, the Boston Transcript, the Los Angeles Times, the St. Paul Pioneer Press, the Memphis Commercial Appeal—newspapers in every section of the country.

The weekly releases are also sent to various syndicates, which give the weekly plumbing and heating articles a wide circulation among the smaller newspapers in the country. Through the Western Newspaper Union, for example, several million more readers are reached. They are in small villages and country towns, to be sure, but the articles serve to create a demand for better plumbing and heating equipment and to suggest that its possession is possible.

An accurate record is kept of where and when and how much of the material that is sent out is used, this being accomplished through the services of clipping bureaus. A card is made out for each newspaper which uses an article, and all subsequent articles are also recorded on this card.

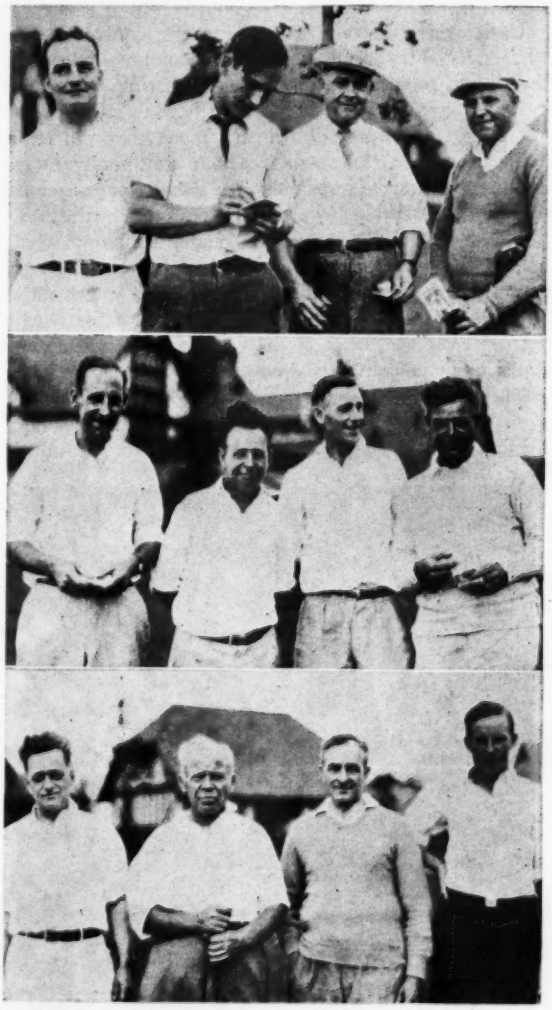
In addition to the weekly releases for newspapers, the bureau's publicity department keeps in contact with magazines which wish material on plumbing and heating subjects.

In the beginning, articles were written for magazines which had previously been solicited for articles on plumbing and heating. In a very short time, however, magazine editors were turn-

ing to the bureau for articles on particular plumbing or heating subjects, asking for a series of articles, asking for articles for special issues, and submitting articles they had received on plumbing and heating subjects to the bureau for correction, and approval as to accuracy.

An example of this co-operation being shown by many of the better magazines at present may be illustrated in the September issue of The Golden Book, carrying an article entitled "Bathing Through the Ages." The article discussed methods of modernizing the bathroom, without mentioning the installation of new fixtures. This and one or two other statements made in the original article, were checked by the bureau and approved in the finished article, printed in the magazine. The bureau also co-operated with The Golden Book in furnishing many of the photographs for this article.

The co-operation of the bureau was asked in revising the sections on plumbing and on radiator heating for a booklet to be entitled "How to Judge a House," put out by the National Committee on Wood Utilization,



Top row: W. S. Hilton, Lloyd Killian, Gus Ostrand, L. P. Eaton. Middle row: Geo. A. Jones, A. G. Park, Roy S. Wells, J. L. Frye. Bottom row: Geo. B. Bressler, A. C. Brown, Ed. Strenger, Wm. Chambers. Photos taken at the golf meet of the Lake County Sanitary and Heating Engineers' Association

Fretz-Moon

Real Quality Builds Future Business—

THE clean sharp threads on all Fretz-Moon pipe and couplings are more than just a time and labor saver—they are evidence of the care that enters into every phase of the making of this quality pipe.

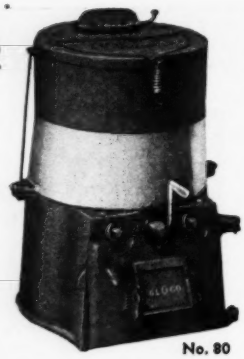
Contractors anxious to build future business on good work and good will find a ready aid in this truly fine product —Fretz-Moon Pipe.

FRETZ-MOON TUBE CO., INC.
BUTLER, PA.

PIPE

BLACK and GALVANIZED

A TANK HEATER FOR ANY STANDARD SIZE TANK—OR NUMBER OF FAMILIES



No. 80

45 different sizes to pick from

The most thoroughly satisfactory method known of heating hot water at low cost is the coal tank heater. And in all tank heater history there has been nothing to approach, in completeness of line and all-around satisfaction, the GLOCO Red Band Tank Heaters.

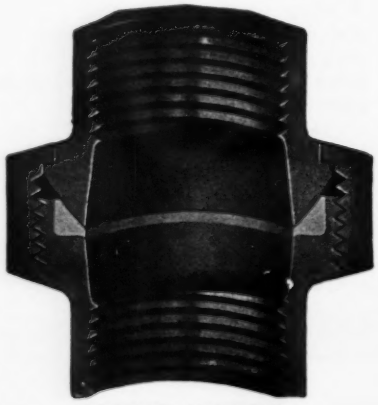
Tested to 300 pounds—guaranteed to 125 pounds working pressure.

Ask your Wholesaler

EVINS F. GLORE & SON, Inc.
Grand Central Terminal Bldg. New York City
"LOOK FOR THE RED BAND OF QUALITY"

TRADE MARK
GLOCO
RED BAND TANK HEATERS

IMICO UNIONS



NOTE THE BRASS DISC

Made of refined Malleable Iron with Brass Seat inserted in place by powerful pressure so that it cannot become detached.

Approved by Underwriters' Laboratories.

ILLINOIS MALLEABLE IRON CO.
Chicago, Ill.
Manufacturers Full Line Iron Pipe Fittings

co-operating with the Department of Commerce in Washington, D. C. The wide distribution of this booklet that is expected will give extensive circulation to the latest and most up-to-date heating and plumbing equipment, installation, and what is desirable in a house.

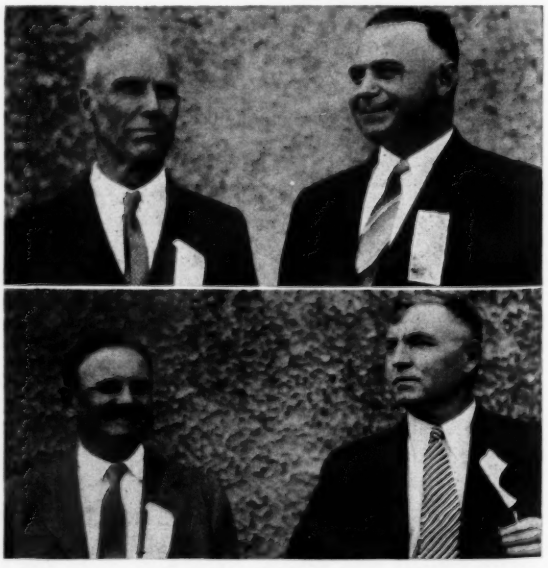
The bureau's co-operation has also been solicited in the preparation of a book by a professor at Kansas State Agricultural College on home modernizing and in the preparation of a section on plumbing for a children's encyclopedia.

Some of the magazines which have co-operated with the bureau in publishing articles are: American Builder, American Home, Literary Digest, The Rotarian, Home and Garden Review, Better Homes and Gardens, Good Homes, Science and Invention, Golden Book, American Building, The Home Modernizer, Business Week, Building Age, Building Supplement, The Small Home, Association News, Hygeia, Nature's Path and National Real Estate Journal. In many cases stories were prepared by members of the bureau staff, and in other instances the articles were submitted to the bureau for correction.

Under this program, manufacturers, contractors, and wholesalers—through the bureau—are molding public thought in regard to plumbing and heating. One article in one paper, whose circulation is, say 100,000, will not change the opinions of very many, but the regular publication of articles will reach a continually increasing number of readers and will, usually unconsciously, change this attitude toward plumbing and heating.

This work is educating the reader to know what is to be expected from good plumbing and heating equipment, when that equipment is adequate, and what can be done to improve existing equipment. It is teaching the principle that only from good fixtures and good installations can come good and lasting service.

The bureau is working on the theory that it is easier to sell an informed prospect than one who has no information at all on what you are trying to sell him.

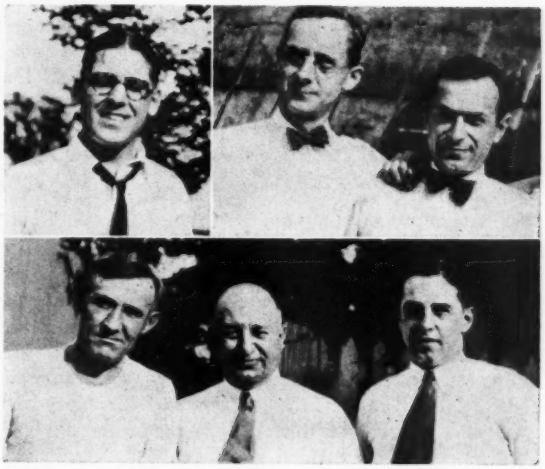


Top row: A. G. Jamesson, La Crosse; A. J. Hanneman, Wisconsin Rapids. Bottom row: G. W. Slightam, Janesville; A. T. Welsh, Eau Claire, Wis. Photos taken at the convention of the Wisconsin Plumbing Inspectors' Society

Philadelphia Plumbsteam Club Holds Annual Outing

The Plumbsteam Club of Philadelphia, Pa., held its fall outing on September 26 at the Philadelphia Rifle Range, a club on the outskirts of that city. The members and guests did not begin arriving until late afternoon and as a consequence the baseball game, the only field sport, was limited to five innings. Considerable excitement was crowded into those innings, which commenced as soon as John A. Doody, president of Doody's Plumbing and Heating Supplies, Philadelphia, chose a team which played against one selected by W. G. Simms of Thomas Devlin Mfg. Co., that city. Mr. Doody, the star of the game, shared the fielding honors with Jack Flemm, president of Flemm Lead Co., Long Island City, N. Y., whose one hand catch of a line drive from the bat of George H. Urwiler, in charge of purchases for Tomlinson Co., Inc., Philadelphia, and vice president of the club, broke up a rally in the fourth inning that had netted four runs and threatened to overcome the lead held by Mr. Doody's nine, who won, however, by a score of 8 to 5. The teams opposed each other as follows:

Team led by Simms	Team led by Doody
Simms, p.	Flemm, p.
Urwiler, c.	Kneedler, c.
Schneider, 1b.	Craig, 1b.
Hager, 2b.	Derbyshire, 2b.
Ferguson, 3b.	Bell, 3b.
Forster, ss.	Doody, ss.
Hackett, cf.	Jones, cf.
Savill, rf.	Bernstein, rf.
Walthour, lf.	Knight, lf.



Top row: J. Flemm, president, Flemm Lead Co., Inc., Long Island City; L. F. Mack, vice president, Derbyshire, Mack & Morgan, Inc., Philadelphia; Stanley S. Backner, Camden Pottery Co., Camden, N. J. Bottom row: John A. Doody, president, Doody's Plumbing & Heating Supplies, Philadelphia; John Hager, Standard Sanitary Mfg. Co., Philadelphia; Russell Forster, Nye Tool & Machine Works, Chicago. Photos taken at the outing of the Plumbsteam Club

The evening was given over to a dinner, which was heartily enjoyed. A group of vaudeville entertainers lent their art to the amusement and the club's quartet, led by Mr. Urwiler, offered several musical numbers which from the applause were highly appreciated.

Mr. Urwiler was chairman of the committee respons-

ible for the preparations. He was assisted by Russell Knight of Russell G. Knight & Son Co., Philadelphia; Harry Walthour of the Philadelphia branch of The H. B. Smith Co., Westfield, Mass., and president of the club, and Mr. Doody.

◆

North Shore Contractors Hold Final Golf Meet

The North Shore Plumbing and Heating Contractors' Association held its final golf meet of the season at Gelmgate Golf Club, Glenview, Ill., with more than one hundred attending. After lunch had been served, the tee-off took place at one o'clock. At seven, dinner was served, with George Wible acting as toastmaster. Mr. Chester, representing the association, Mr. Weil, the manufacturers, Mr. Latimer, the jobbers, and Mr. Bergdahl, the salesmen, expressed their enjoyment of the day. A vote of thanks was extended to the golf committee, consisting of Howard Moore, chairman, George Wible, and John Doose, for their efforts in making the affair such a success. E. R. Norman was awarded the cup and first choice of prizes, for his score of 88. Second prize went to M. Ignatious, of the Standard Sanitary Mfg. Co. Other prizes, in the order named, went to the following:

W. S. Hilton, Roy Reynolds, Mr. Bergdahl, Geo. Wood, Geo. Jones, Homer Robinson, John Latimer of the Inland Supply Co., J. E. Fitzgerald, W. H. Gregg, J. H. Doose, Fred Nelson, Geo. Moore, C. J. Cullen of Crane Co., Isidor Weil of Weil-McLain Co., Geo. Wible, E. H. Funk, E. E. Fitzgerald, O. F. Shaefer of Henion & Hubbell, J. Dix, R. D. Olsen, John Leonze, Wm. Lloyd, H. Moore, N. J. Mergenthaler, Ben Lenzen, Walter Shields, A. J. Chester, president of the association, A. J. Clark of the Stockham Pipe & Fittings Co., and Mr. Eaton of EverHot Heater Co.

High gross was won by J. Weil of Weil-McLain Co.; two ball foursome by Funk and Shields; prize for blind bogie by William Lloyd, H. Gregg, Isidor Weil, J. Krejci, Roy Reynolds and J. Fitch.

◆

Change in Ownership of Salt Lake City Firm

The Bywater-Whitely Plumbing Co., of Salt Lake City, Utah, which has been operated by William A. Bywater, past National director and former president of the Salt Lake City and Utah State Associations of Sanitary and Heating Engineers, and George M. Whitely, the present chief executive of the Salt Lake organization, has dissolved. Mr. Whitely has taken over the present business, located at 133 East Broadway, which will be known as the Whitely Plumbing Company.

◆

San Francisco Golfers Play Union League Course

The fifty-seventh monthly golf tournament of the Plumbing and Heating Club of San Francisco and the Bay Cities was played off in snappy style on Thursday, September 25, when the golfing section of the three branches of the industry unlimbered their sticks at the Union League Golf and Country Club, near San Bruno. Upward of two score of players took part.

Both the course and the club house are brand new

Curtis
PIPE THREADING MACHINE

No. 442
Range 1 to 4"
Motor Driven

How many times have you wished for a pipe threading machine that would not take up too much space, that was light in weight, that was fast and above all was ACCURATE. You can have these things in the Curtis. Because the dies turn instead of the pipe it is faster and more easily operated. Because of this too, bends can be threaded just as easily as straight lengths.

The Curtis works so smoothly that during power failures it can be hand operated.

It's the machine you want—let us tell you how you can own it.

THE CURTIS & CURTIS CO.
318 Garden St. Bridgeport, Conn.

and together constitute one of California's newest and most beautiful show places. In fact, the course itself is so very new and the greens so fast that many of the members who otherwise consistently break a hundred, tallied up their cards to find themselves well over the century mark. But the twelfth hole was good to many of them, Rene Fountaine, F. F. Elliott and Frank Mosher each securing a birdie. By shooting a sweet three on the sixteenth, Mr. Elliott also achieved an eagle. Robert Allmon, chairman of the golf committee, unknowingly made a bid for fame by accomplishing the unusual feat of stroking each of the first nine holes in six. Winners in the various classes were:

Class A, Jackson Noble, low net 68; Class B, B. F. Blair, low net 74; Class C, A. Somerton, low net 73; Class D, Frank Mosher, low net 69. W. P. Scott, a non-member, shot a clean 82 and won the guest prize.

At the short business meeting held at the conclusion of the dinner, a new member was presented, Frank X. Farry of Sunnyvale. Chairman Allmon of the golf com-

Top row: Al. Kleerup, Harry Hoopes, William Lane and Al. Somerton. Middle row: W. Allan Taylor, Jackson Noble, H. P. Wilson and L. H. Cochran. Bottom row: Robert Lees, C. C. Anderson, F. F. Elliott and W. P. Scott, Jr. Photos taken at the meet of the San Francisco Plumbing and Heating Club, at the Union League Golf and Country Club

ONE of the qualifications for plumbing brass goods today is built-in quality that endures through the years.

Enterprise Brass Goods has the advantage of skilled design that considers always, the matter of finest quality. It considers, too, the installation problems that *you* encounter and it provides brass goods which meets the other demand for beauty, too.

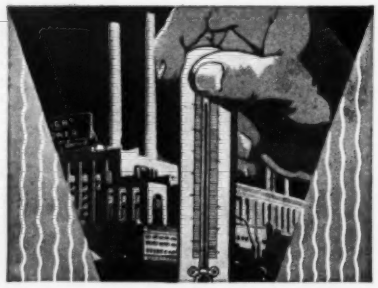
It does all this at a price that is never in excess of that which you are asked to pay for inferior products.

YOU are safe when you insist upon Enterprise Brass Goods from your jobber

THE ENTERPRISE BRASS WORKS

MUSKEGON .·. MICHIGAN

IN HEAT IT'S B.T.U.'S



***In* Mil Flex *Blades it's* Work Value**

The accepted standard of heat measurement the world over is the B. T. U.—the amount of heat required to raise the temperature of a pound of water one degree Fahrenheit. There is also a definite standard for the measure of hack saw blade performance known as WORK VALUE—based on the number of cuts per blade and the time per cut.

MIL FLEX Hack Saw Blades are now produced on the WORK VALUE standard, assuring the user of *guaranteed performance* at all times.

MIL FLEX
for Plumbers

The Henry G. Thompson & Son Co.
Established 1876
New Haven, Conn. U. S. A.

Also Manufacturers of Metal and Wood Cutting Band Saws

PENNSYLVANIA
RANGE BOILERS

Lead the Way to Additional Profits

When you install a Pennsylvania Range Boiler on a job, the extra, trouble-free service it gives builds up your reputation and your customers' good will.

Standardize on Pennsylvania Range Boilers and watch your sales increase.

In Philadelphia for over 35 years.

Manufacturers of tanks of most every description on specification.

Ask your jobber to supply you.

PENNSYLVANIA RANGE BOILER CO.
Main Offices and Plant:
S. W. Cor. 24th and Washington Ave., Philadelphia

mittee urgently requested that the representatives of the wholesaler and manufacturer groups try to bring guests from among their plumber, architect or building contractor friends.

President Young concluded the meeting by paying high tribute to the memory of Executive Secretary Chas. R. Hutton of the California state association.

Tournament scores were as follows:

	G.	H.	N.		G.	H.	N.
Blair	95	21	74	Fountaine	88	G	88
Blair, Jr.	118	G	118	McLeod	113	18	95
Wilson	98	15	83	Cochran	86	G	86
Noble	79	11	68	Mosher	103	34	69
Kraus	106	28	78	Higgins	106	29	77
O'Hair	89	15	74	Vigus	95	18	77
Turner, W.	104	18	86	Brown	108	G	108
Henderson	114	30	84	Hoopes	106	35	71
Somerton	98	25	73	Nunn	126	G	126
Bogue	112	G	112	Fleming	97	G	97
Spaulding	120	G	120	Anderson	97	15	82
Lane	131	40	91	Kleerup	124	G	124
Elliott	86	11	75	Lees	89	14	75
Hoyt	92	16	76	Rowe	94	17	77
Allmon	104	17	87	Farry	105	G	105
Callahan	102	G	102	Clark	101	21	80
Gilley	108	21	87	Pearce	99	24	75
Rainwater	100	24	76	Forsythe	106	26	80
Browning	102	28	74	Hensley	108	G	108
Martin	121	G	121	Greenberg	101	23	78
Pennock	122	G	122	Young	94	9	85
Heleck	96	G	96	Scott, W. P.	82	G	82
Birk	113	G	113	Scott, P.	87	G	87

Top row: K. C. Vigus, H. Brown, Frank Mosher and William Turner. Middle row: H. M. Callahan, F. X. Farry, W. A. Rowe, Robert Allmon. Bottom row, Ben Bogue, W. R. Pearce, C. N. Gilley and Ross M. Clark. Photos taken at the meet of the San Francisco Plumbing and Heating Club, at the Union League Golf and Country Club

MARKETS

BUSINESS REPORTS FROM LARGE JOBBING CENTERS

Demand Holds at Improved Level

IN THE past fortnight, plumbing and heating materials moved at a pace which indicated an extension of the better sales volumes which have been experienced by wholesalers in the past thirty days. In the majority of cases, the better business is traced to the seasonal increase in the movement of heating products, although in many cases jobbers report an improvement in the past thirty days for plumbing goods as well. Estimates on the part of a number of jobbers interviewed indicate that their total volumes for the year to date range from 20 per cent to 40 per cent below those for the corresponding period of 1929. While collections are termed as "fair" in some sections, reports on this phase of business are not as promising in other territories. Jobbers are limiting their purchases, as has been customary practically all year, to their actual needs. Producers are shipping material on schedule, with few exceptions, and makers' prices to distributors have not been changed since our last review.

*August shipments of enameled sanitary ware, as reported to the department of commerce by 22 manufacturers comprising practically the entire industry, totaled 200,231 pieces, as compared with 207,600 pieces in July and 395,542 pieces in August, 1929. Shipments for the first eight months of the current year totaled 1,722,769 pieces against 2,645,410 pieces for the corresponding period of 1929. * * * September shipments of solid porcelain plumbing fixtures, as reported to the bureau of the census by nine manufacturers comprising the entire industry were 9,788 pieces, as compared with 9,294 in August and 12,430 in September, 1929.*

CENTRAL WEST

Heating Business Holds Spotlight

IN a number of cases, wholesalers of plumbing and heating supplies in this territory experienced an improvement in their volumes of business during the past thirty days, ranging from 5 per cent to 20 per cent. Others, however, reported volumes at close to the same level as previously, while in a few cases a falling off was noted. Most of those wholesalers who were in receipt of better business during the period attributed it largely to the better business coming from the heating field, although in the experience of most of these jobbers the seasonal improvement in this line is not up to expectations.

Demand for plumbing materials failed to show much improvement during the last thirty days, and enameled ware, pottery and other finishing materials did not show the usual seasonal activity. Reports from a number of wholesalers in the Central West territory indicate that their total volume of business to date this year is from 20 per cent to 40 per cent below that for the corresponding period of 1929.

Buyers for wholesale houses are purchasing just about as actual needs are created. Manufacturing sources of supply are in possession of sufficient stocks to grant immediate shipments and no complaints were heard regarding this phase of business. No word has been received from manufacturers of any change in their published prices to wholesalers since our last review appeared.

Soil Pipe

Wholesalers in this district report a light turnover in soil pipe for the past two weeks and this condition is reflected to manufacturers, who indicate that little new business reached them during the period. Wholesalers are frequently able to satisfy their current requirements with pick-ups at manufacturers' local warehouses. Manufacturers have not changed their published prices to wholesalers and deliveries are not delayed at foundries.

Pipe—Steel and Wrought Iron

The smaller sizes of steel pipe continued to move at the fair pace prevalent during the past thirty days, the requirements of heating contractors accounting for the bulk of the tonnage. Wholesalers' racks hold no more than ordinary quantities of pipe at this time, and mills report a fairly steady call for small quantities from jobbers in this field. Mill salesmen interviewed reported little change in the movement of wrought iron pipe for the period of this review in comparison with the preceding fortnightly period. Neither steel pipe nor wrought iron pipe manufacturers have announced any change in their published prices. Mill shipments are executed promptly in both cases.

Fittings

Wholesalers say that a fairly good seasonal turnover in cast iron fittings prevailed during the past two weeks, but that malleables and other types commonly used in connection with

plumbing systems did not move so well. Jobbers continue to follow the policy of purchasing as material is moved out of stock, and, in the majority of cases, orders reaching manufacturers are for small quantities. Shipments are generally prompt, and makers' published prices are unchanged since our last review appeared.

Enameled Ware

Reports from wholesalers vary somewhat concerning the movement of enameled ware during the past two weeks. While some distributors experienced a turnover in this line that compared closely with that for the preceding fortnightly period, others interviewed said that their enameled ware business showed a downward tendency. Manufacturers continue to ship material without delay and, at the time of going to press, had not changed their published prices to jobbers.

Pottery

Pottery manufacturers in this territory say that the movement of vitreous ware is light and that orders from wholesalers show little change from one week to the next. Potters' supplies of staples are sufficient to make quick shipments possible, and their prices to jobbers have not been changed.

Plumbers' Brass Goods

No developments of importance marked business in cast and tubular brass goods during the past two weeks. Wholesalers continue to order in small lots in accordance with their actual needs. Manufacturers can ship most items quickly. No change has been announced since our last review in the published prices of producers.

Range Boilers

Production of range boilers in September as reported to the bureau of the census by 13 manufacturers, having a daily productive capacity of 6,960 boilers, the value of whose output constituted approximately 80 per cent of the total for the industry, was 44,597 as compared with 33,901 in August. Manufacturers and wholesalers in this territory report a continuance of the moderate, although fairly steady, movement of range boilers.

Boilers and Radiators

With the heating industry in the midst of its most busy season, repair parts continued to give manufacturers in this section a fairly substantial volume of business, which was, of course, augmented with orders for complete systems. Factories are shipping on schedule and manufacturers have announced no change in their published prices.

NEW YORK

Increase in Heating Goods Sustained

INTEREST in trade circles in the Metropolitan area continues to center on current building statistics, which show a maintenance of the trend toward improvement first evidenced in September. The month of October, judging by preliminary figures, which are at least indicative of the final result, not only had a larger volume of building permits than September, but also than for October, 1929. Many interests interviewed are of the opinion that materials moving to operations in December and January will be in greater volume than for December, 1929, or January, 1930.

In the meantime, it is reported by wholesalers that the demand for repairs and replacements of heating equipment continues heavy, although it is freely conceded that requirements for new construction are small. It is felt that the advent of cold weather, and there had been but little of it prior to the end of October in this territory, will stimulate heating requirements still further. All in all, business has been somewhat ahead of the expectations of most wholesalers this fall.

Collections are reported to be not as prompt as during the Summer, which is said to be a normal condition, reflecting the increased turnover and outlay on the part of contractors at this season. Manufacturers state that there has been no perceptible lag in payments by wholesalers, however; in most instances, current activity is of proportions which enable all interests to finance turnover adequately.

Export trade continues under the influence of several untoward political events in South America, Cuba and China, but it is stated by most houses here that their foreign branches believe that the current cessation of building activity will not prove of long duration. One observer remarked that the prices of raw commodities such as sugar, coffee, and rubber have advanced steadily during the past fortnight, to the immeasurable economic benefit of foreign countries which produce them; such improvement in prices has in the past been speedily reflected in increased buying of American products, it is stated.

Northern New York has experienced severe weather conditions during the past fortnight, and it is said that a belated demand for heating materials made itself felt in an insistent manner. Current volume is said to be considerably greater than that of September and early October, and in some instances ahead of that of 1929 at this time.

Residential building contracts in the Metropolitan area of New York during the week ended October 17 showed a further gain, extending that recorded during the first nine business days of October, according to F. W. Dodge Corporation. Out of the total of $31,242,400, for all construction awards in this area during the past week, $15,087,300 or 48 per cent was for new residential building, $15,228,100 or 49 per cent for non-residential buildings, and $927,000 or only 3 per cent for public works and utilities.

For the first 15 business days of October residential awards totaled $30,386,300; non-residential contracts, $20,536,800; while public works and utilities accounted for only $2,679,600. The daily rate of contract-letting for residential buildings during this period was $2,026,000; this was a gain of 32 per cent over the daily rate maintained in September and an increase of 36 per cent over the rate reported in October, 1929. For non-residential building the October rate thus far is also larger than in either the preceding month or October of last year. Public works and utilities, however, failed to show gains over the daily rate of these prior comparative periods. Construction contracts, including all types, awarded in this area during the first 15 business days of October amounted to $53,602,700; this was at the rate of $3,574,000 per business day as compared with $3,263,000 for September and a daily rate of $3,093,000 for October, 1929.

For the year to date construction undertaken in this territory totaled $793,248,600 as compared with $943,247,900 for the corresponding period ended October 18, 1929.

Soil Pipe

No measurable change in the rate of activity in cast iron pipe has been noted by several manufacturers and wholesalers interviewed, business continuing at a low ebb since the time of our last report. There are some inquiries for fair tonnages for municipal and state operations reported, but in the main demand is said to be light. Prices

remain unchanged by manufacturers and wholesalers since the time of our last report, and inventories are of moderate size at all points of distribution.

Pipe—Brass, Steel and Wrought Iron

Wholesalers report a continuance of the relatively satisfactory demand for pipe of all kinds, while mills state that requisitions are small, as a rule, but satisfactory in the aggregate. There have been no changes in prices reported by manufacturers or wholesalers, and inventories of both interests are of moderate proportions.

Fittings

The advance in the price of steel nipples announced by several manufacturers about October 10th has been well maintained. It is reported that several wholesalers purchased heavily for stock, with consequent increase in inventories. Manufacturers state that the seasonal demand has exceeded expectations, and that the bulk of current requisitions by wholesalers have to be made up for shipment. No changes in prices on other types of fittings have occurred, all interests reporting that current schedules are being firmly maintained, with deliveries prompt as a rule.

Pottery

While this commodity has enjoyed some increase in volume during the past two weeks, wholesalers interviewed state that the demand for pottery has not been relatively as heavy as that experienced in several other lines during the same period. Requirements for specials are satisfactory to most wholesalers in the suburban area, it is reported. Inventories are said to be of moderate proportions at all points of distribution and prices are being firmly maintained by all interests.

Enameled Ware

In the opinion of most wholesalers interviewed, the turnover in enameled ware during the past thirty days has been relatively more satisfactory than it was during August and September, even after allowing for seasonal variation. A distinctly better tone developed in the demand for staples, which are moving in some quantity to replacement jobs; however, requirements in this connection are not of sufficient size to offset the decline in new construction, and volume is still not comparable with that of a year ago. Specials continue to be taken in fair quantity in the suburban areas, according to most reports. Inventories are said to be low among wholesalers, and of moderate proportions at factories. Prices remain unchanged by all interests.

Plumbers' Brass Goods

The further decline in copper metal found no reflection in the prices of cast or tubular brass, according to several interests interviewed. Manufacturers and wholesalers are seemingly of the opinion that current quotations are reasonably based, and the dearth of forward buying has made no incentive on the part of buyer or seller to reduce quotations. Manufacturers report a fairly sustained demand for small quantities of goods, which they have no difficulty in meeting promptly. Tubular brass is said to be somewhat heavier in turnover than cast brass at present. Inventories of all types of brass are relatively low both at plants and at distributing points, but deliveries are prompt.

Range Boilers

Requirements for range boilers are mainly for replacement work at present, according to most wholesalers, although there is some demand for operations now under way in Long Island and New Jersey. In some sections it is reported that business compares favorably with that of a year ago at this time. The price structure remains unchanged by all interests, and inventories are said to be of fair working proportions at all points of distribution. Occasional delays are reported in deliveries of allied items such as storage tanks.

Boilers and Radiators

Requirements of wholesalers are reported by manufacturers to be well maintained at present, and in view of the fact that there has been a mild Fall, the advent of cold weather is expected to continue the current seasonal bulge somewhat beyond the ordinary length of time. A determined effort by some interests to develop a replacement demand is said to have obtained gratifying results. This, together with an obsolescence demand which is constantly growing with the passage of time, has not made up the dearth of requirements for new buildings, but nevertheless has given a turnover this year which has thus far exceeded expectations. Prices are being firmly maintained by wholesalers and manufacturers alike; and it is said that inventories at plants are relatively heavier than those among wholesalers.

MIDDLE ATLANTIC

Demand Continues at Even Pace

THE rate of sales during the two week period covered by this review, from the standpoint of jobbers in the Middle Atlantic territory, continued at about the same pace noted during the earlier weeks of October. Activities, while of a moderate nature, have at least held abreast of those experienced since the beginning of September, during the fortnight, with the exception of heating materials, which are reported to be in greater demand at this time than previously this year.

Wholesalers are confining their purchases to meet only their immediate demands. In some instances, reports are heard of delays on the part of jobbers in supplying contractors with material, but these are not of a serious nature. Manufacturers who in most instances have curtailed production to meet current conditions are filling orders quite promptly. Manufacturers' prices are unchanged since our last review.

The construction record for this section covering the two weeks from October 1 to 17, as reported by F. W. Dodge Corp., shows a slightly upward trend. Totals for the first week were $8,648,800 with awards for non-residential construction valued at $3,794,300 and a valuation of $3,702,600 awarded for residential types. Awards for the second week totaled $10,505,600, of which $7,845,500 in contracts were given for commercial projects.

Soil Pipe

Foundry representatives interviewed say that orders received are of the small lot variety. Dealers are maintaining only fair working stocks, suitable in most instances to meet quick commitments of their trade. Quotations from foundries are firm and unchanged, and stock at these points is ample to make quick forwardings.

Pipe—Brass, Steel and Wrought Iron

Pipe volumes continued to hold the quickening evidenced earlier during the Fall season, with some slight improvements to be noted, according to mill representatives interviewed during the period. Opinions expressed by steel pipe salesmen indicate that sales for October will show a better total than for September. Wrought iron pipe held close to the level that prevailed during the preceding fortnightly period, reports indicate, and brass pipe

sales showed little change. Mills have not changed prices, and shipments are prompt.

Fittings

Sales are reported by wholesalers as being relatively satisfactory at this time and volumes are equivalent to other recent review periods. The seasonal upward trend of heating installations has given cast iron fittings a better tone in contractor demand. Little stock buying is being done by wholesalers. Manufacturers have not changed their published prices to jobbers. Some slight delays are reported in shipments of unusual types, but in the main producers' stocks warrant prompt deliveries.

Enameled Ware

Little change in the sale of enameled ware was noted during the fortnightly period, as compared with the previous fourteen days. Distributors say that master plumber demand is only of a moderate nature for this season, with renovation work requiring the majority of fixtures. Special items such as hospital fixtures are enjoying a fairly sizable demand, it is said. Jobbers are carrying only moderate inventories, which are sufficient to meet the curtailed demands of the trade. Manufacturers state that their stocks are ample to make quick forwardings when necessary. No price changes have been announced.

Pottery

According to potters' representatives, orders received for future delivery to be used in projects now in the process of completion are of a good seasonal nature for this year. Renovation work is requiring pottery in some quantities. Potteries have good quantities of ware on hand. Prices remain unchanged.

Plumbers' Brass Goods

No change was reported in the movement of cast and tubular brass goods for the fortnight. Much the same pace was held as that which has prevailed for the past two months. Small fill-in orders are the rule. Most orders are for immediate delivery, which, with few exceptions, can be promptly filled by makers. Manufacturers' prices to wholesalers are unchanged.

Range Boilers

Contractor needs for range boilers showed a slackening during the last review period, it is reported. A quickening in demand took place during September, according to producers, this increased activity being motivated mainly by remodeling and renovation work. October volumes are expected by sellers to show a slight decrease. Inventories of both dealers and makers are being maintained with relation to present demand.

Boilers and Radiators

The impetus recently given boiler and radiator sales is still in evidence, according to reports emanating from jobbers' and makers' salesmen. Producers are shipping quickly. Jobbers as a rule are not carrying large inventories. Manufacturers have not changed their published prices to wholesalers.

The Metal Market

	Oct. 28	Average Sept., 1930	Average July, 1930	Average 1929
PIG IRON—				
No. 2 foundry, Chicago	$17.50	$17.50	$17.90	$20.00
PLATES AND SHEETS—				
Steel boiler plates, Pittsburgh, per lb.	1.60c	1.60c	1.65c	1.93c
Blue annealed sheets, No. 13, Pittsburgh, per lb.	2.00c	2.10c	2.15c	2.17c
Black sheets, No. 24, Pittsburgh, per lb.	2.35c	2.40c	2.55c	2.85c
Galvanized sheets, No. 24, Pittsburgh, per lb.	3.00c	3.00c	3.15c	3.57c
TIN—				
Straits tin	29½c			
LEAD—				
Chicago	5.50c			

The Old Metal Market
Dealers' Buying Prices

	Per lb.		Per lb.
Aluminum clippings	12 c	Copper, light	6¾c
Block, tin	22 c	Copper, uncrucibled wire	10 c
Brass, light	4½c	Faucets and valves	7 c
Brass, heavy mixed	6½c	Lead, heavy	3¾c
Brass, red	8¼c	Solder Joints	6¾c
Copper, crucible	7¾c		

NOTE: Prices are those quoted on Tuesday of this week.

SOUTHEAST

Business Holds Moderate Level

A FAIRLY steady demand for plumbing and heating items was reported in the Atlanta area for the past fortnight. The heating lines continued to lead in activity. Repairs and modernization work continue to be a feature of the market, while a sizable increase in new work was reported. Construction work is slowly and steadily improving in this section. Residential projects continue to be of small proportions, however. Jobbers are adhering to the policy of small but frequent factory commitments. However, wholesalers are maintaining good working stocks and are amply enabled to care for the immediate needs of the trade. Prompt shipments from the manufacturers in all lines were reported.

Soil Pipe

Soil pipe distribution was reported as fair for the past two-week period, jobbers stating that a slight upward trend was noted in demand. Wholesalers' stocks are of sufficient size to insure prompt deliveries, but no sizable increase was made in factory commitments, it was said. Prices are unchanged and shipments from sources are prompt.

Pipe—Brass, Steel and Wrought Iron

While sales were mainly in small quantities, yet they were quite numerous, and hence a moderate demand for all types of pipe was had, according to jobbers interviewed. Wrought iron was in fair volume, while steel pipe moved at a better rate. Brass pipe sales for the past two weeks were reported as moderately good. No price revisions were announced and deliveries were regular.

Fittings

Little change was reported in the fittings market for the past fortnight and business in this field remained at about the same level established a month ago. A good assortment of stock is on hand among jobbers in the territory, and the latter are regulating their factory orders to the daily fluctuations in stock withdrawals. Prices remained firm at the published sheets and no difficulty was reported in securing items on schedule.

Enameled Ware

A satisfactory increase in enameled ware sales over the past two weeks was reported by some jobbers. Several large construction projects reached the finishing stage, and this, coupled with a considerable amount of

reinstallation work, made for a moderately good business in this line. Dealers' stocks are of good proportions, and makers have not changed their published prices.

Pottery

Master plumber demand for vitreous ware was of a moderate nature, according to jobbers interviewed. Jobbers are confining their orders to immediate needs. Potters are well stocked, however, and deliveries are promptly made. Prices remained unchanged.

Plumbers' Brass Goods

According to wholesalers' reports, business in cast and tubular goods remained at about the same level established early in October. Distributors are placing orders specifying small quantities and are depending on the quick shipping facilities of manufacturers for material. Prices are unchanged from the time of our last report and orders are shipped promptly.

Range Boilers

A fair demand for range boilers was reported by jobbers. Modernization and repair work continues to account for a good part of the business in this market. Jobbers have ample stocks on hand to care for the requirements of the trade. Manufacturers have not announced any price revision and shipments are promptly made.

Boilers and Radiators

Sales in boilers and radiators continued at a moderately good seasonal rate in this territory. The improvement in demand which started the latter part of September continued well into October and most observers interviewed believe that the upward trend will continue for some time. Good working stocks are being maintained by jobbers. Prices are unaltered and shipments are prompt.

PACIFIC COAST

Demand Holds Even Trend

THERE is little if any change in conditions among the trade on the Pacific Coast. A moderate demand prevails for materials which varies little from week to week. While stocks in distributors' hands are not heavy, they are well assorted, and material can be quickly obtained. Distributors' prices to the trade continue to vary in the different jobbing centers.

Soil Pipe

The demand for soil pipe is not heavy at present. Most of the purchasing being done is for immediate requirements, with inquiries out for future needs. Distributors generally have sufficient stock to enable them to ship material promptly. Prices on soil pipe are unchanged.

Pipe—Steel and Wrought Iron

Steel pipe continues to move at about the same pace that has prevailed for some time. Stocks in distributors' hands are well assorted and the trade's needs are being taken care of without delay. Distributors' prices, generally, remain unchanged. Wrought iron pipe continues in light demand, most purchasing being done in small lots for immediate shipment. Distributors of wrought iron pipe have ample stocks to take care of the trade's present needs. Prices are unchanged.

Fittings

Cast iron, malleable and drainage fittings show little new activity. The

THE STOCK MARKET

Range for Week Ending October 25, 1930†

Par Value	1930 High	1930 Low		*	Weekly High	Weekly Low	Weekly Close
NP	156⅜	96⅜	Air Reduction Sales Co.	A	107	98⅛	105⅛
NP	39¾	20	American Rad. & Stand. San. Corp.	A	22⅜	20⅞	22⅛
25	100⅝	35⅜	American Rolling Mills Co.	A	39⅝	35½	38¼
50	81½	33	Anaconda Copper Mining Co.	A	36	33	34¼
NP	46½	25	Bastian-Blessing Co.	C	27	25	27
NP	110¼	69¼	Bethlehem Steel Co., com	A	75¾	71	75¼
100	134	122	Bethlehem Steel Co., pfd.	A	124¼	122	123½
NP	30⅝	12⅛	Brunswick-Balke-Collender Co.	A	14	12⅛	13
NP	112⅜	47½	A. M. Byers Co., com.	A & E	53⅛	47½	51
100	114	108½	A. M. Byers Co., pfd.	A & E	109½	109	109
100	127⅛	102½	Century Electric Co., com.	F	103½	103½	103½
50	4¾	1	Chicago Nipple Mfg. Co., "A"	B	2¼	1	1
50	1½	1	Chicago Nipple Mfg. Co., "B"	B	1	1	1
25	45	40	Crane Co., com.	C	40	40	40
100	119½	113	Crane Co., pfd.	C	115	115	115
20	21	7½	Eagle-Picher Lead Co.	H	8	7½	8
NP	39¾	7	Fairbanks Co., pfd.	A	8½	8	8
NP	50½	27	Fairbanks, Morse & Co., com.	A	30⅝	27¼	30¼
100	111½	102	Fairbanks, Morse & Co., pfd.	A	110	109	110
NP	20	10⅜	Greenfield Tap & Die Corp.	B	11⅜	10⅜	10⅜
NP	29	16	Iron Fireman Mfg Co.	C	20⅝	20	20
NP	148⅜	64½	Johns-Manville Corp., com.	A	75¾	66¾	73
100	123	118¼	Johns-Manville Corp., pfd.	A	123	123	123
100	123½	118½	Jones & Laughlin, pfd.	A & E	120¼	120	120
NP	76¼	41	Minneapolis-Honeywell Reg. Co., com.	A	41¾	41¼	41¼
NP	73	44	Modine Mfg. Co.	B & C	50¼	49	50
NP	34	15⅛	Motor Wheel Corp.	A	17⅜	15⅝	15⅞
NP	49½	35⅝	F. E. Myers & Bro. Co., com.	G	36½	36½	36½
100	105	101½	F. E. Myers & Bro. Co., pfd.	G	104½	104½	104½
100	189½	116½	National Lead Co., com.	A	121	119	121
100	144	138⅛	National Lead Co., pfd. "A"	A	141⅛	141	141
100	119⅜	116	National Lead Co., pfd. "B"	A	118	118	118
NP	4½	1	National Radiator Corp., com.	A	1	1	1
NP	11	2¾	National Radiator Corp., pfd.	A	2⅞	2⅞	2⅞
5	31⅜	21½	Herman Nelson Corp.	B	13	13	13
NP	76	65½	Ohio Brass Co., "B"	B & G	66	66	66
NP	30	10	Revere Copper & Brass.	A	12½	12	12
NP	72	49¾	Revere Copper & Brass, pfd. "A"	A	50	49¾	49¾
NP	3	1	Richmond Radiator Co., com.	B	1	1	1
NP	12	5	Richmond Radiator Co., pfd.	B	5½	5⅛	5⅛
NP	33	27	Ruud Mfg. Co.	C	29	29	29
NP	37¾	19⅜	Spang, Chalfant & Co., com. *	A	29	28¼	28¾
100	96	92	Spang, Chalfant & Co., pfd.	A	93	93	93
NP	32½	17	Time-O-Stat Controls Co., "A"	C	19⅝	18½	19⅜
NP	106⅜	59	Union Carbide & Carbon Corp.	A	65½	59⅛	64⅜
20	38¼	18½	U. S. Cast Iron P. & F. Co., com.	A	27½	24	27
NP	21	15⅝	U. S. Cast Iron P. & F. Co., 1st pfd.	A	18⅝	18½	18⅝
NP	21¼	18½	U. S. Cast Iron P. & F. Co., 2nd pfd.	A	21½	21⅛	21⅛
NP	55	41	U. S. Radiator Corp., com.	B & D	41	41	41
100	100	100	U. S. Radiator Corp., pfd.	D	100	100	100
NP	35	11	U. S. Rubber Co., com.	A	13¾	11⅝	13½
100	63⅞	21½	U. S. Rubber Co., pfd.	A	24¼	21½	24¼
100	198¾	143¼	U. S. Steel Corp., com.	A	152⅝	143¼	151½
100	151¼	141	U. S. Steel Corp., pfd.	A	147¾	147	147¾
NP	9	2⅜	Universal Pipe & Radiator Co.	A	2¾	2½	2½
NP	42⅜	19	Walworth Co.	A	20⅝	19	20⅝
NP	19	7¼	Wayne Co., com.	B & C	7⅝	7⅝	7⅝
NP	35	27	Wayne Co., pfd.	B & C	27	27	27
100	110	93	Wheeling Steep Corp., com.	B	110	108	110
100	135½	131½	Wheeling Steel Corp., pfd. "A"	B	133	133	133
NP	29¾	16	Williams Oil-O-Matic Htg. Corp.	C	16	16	16
NP	150¼	86	Youngstown Sheet & Tube Co.	A	93¼	86	86

*Where listed—

A—New York Stock Exchange
B—New York Curb Exchange
C—Chicago Stock Exchange
D—Detroit Stock Exchange
E—Pittsburgh Stock Exchange
F—St. Louis Stock Exchange
G—Cleveland Stock Exchange
H—Cincinnati Stock Exchange

†If there is no trading during the current week, range represents last week recorded.

trade is purchasing in small lots for current needs only. Distributors generally have well assorted stocks and the trade's needs are being taken care of promptly. Distributors' prices vary in the different jobbing centers.

Enameled Ware

The demand for enameled ware is not heavy at present, most purchases being only for contracts secured. Distributors generally have well assorted, although not heavy, stocks and can secure additional material as needed on short notice from Coast factories. Distributors' prices continue to vary in the different jobbing centers and generally remain unchanged.

Pottery

Little if any increased demand is noted for pottery, which continues to move in small lots for immediate requirements. Stocks in distributors' hands, while not heavy, are of sufficient volume to insure prompt shipments. Distributors' prices remain unchanged.

Plumbers' Brass Goods

This commodity seems to be in better demand than other lines of plumbing material. Distributors' stocks are well assorted and of sufficient quantity to insure prompt shipments. Distributors' prices vary in the different jobbing centers, and, as a rule, follow replacement costs.

Range Boilers

There appears to be little change in the demand for this commodity, which continues to move in about the same volume as it has maintained for the past several months. Distributors are carrying stocks of sufficient quantity to make prompt shipments, and their prices are unchanged since our last review.

Has Business Turned the Corner?*

BUSINESS appears to be turning the corner, and industrial activity seems to be increasing. Nevertheless, the processes of improvement are not yet so definite as to justify confidence in their durability.

They have been demonstrably under way in recent weeks, and some of them have been more than merely seasonal. The lowest point in the business depression so far appears to have been reached at the end of July.

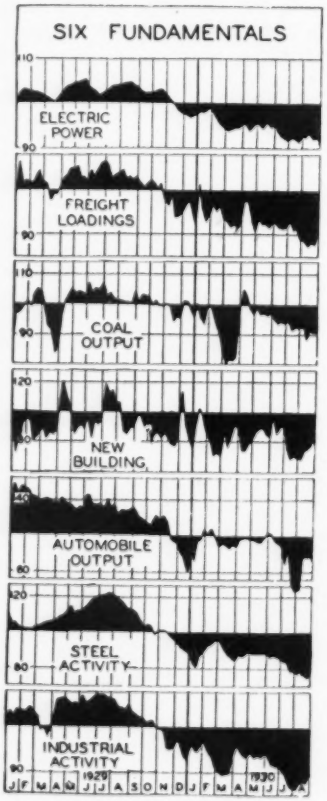
Since the first week of August industrial activity in some of the most important of the basic lines has been increasing, and to a degree which justifies the hope, but not the conviction, that the lowest point of the depression has been reached and left behind.

The diagram on this page shows the weekly variations during 1929 and 1930 in the records of production of six fundamental industries, and at the bottom a combination of these six into a single weekly index of industrial activity. In each case the silhouette represents from week to week the percentages by which the output of the industry has risen above its computed long-term normal level, or fallen below it, and the lowest silhouette does this for the six combined. In each case allowance and correction have been made for the regular seasonal increases or decreases that are normally to be expected.

The output of electric power seems to have been almost stabilized since the beginning of July. The second silhouette represents the loadings of freight on the railroads, and reflects perhaps more reliably than any of the others the changes in the volume of business activity under way. It reached its low point in the second week of August, and its advance since then has kept pace with the normal seasonable increase.

The third diagram represents the production of bituminous coal, on which industry, transportation, and the utilities depend for power. It is characteristically irregular in its variations and it had been declining almost steadily since early April, but from the second week in August it has moved up.

Building construction has been below normal during most of last year, and nearly all of this year. It reached its lowest point in the first week of August, and since then has made a vigorous advance. It is of special significance as an indicator of business conditions. Automobile output declined almost steadily from its extreme highs of the early part of last year to a low point at the end of the year, and then after a moderate recovery to another and extreme low at the end of July. Since then it has doubled, and seems to be holding its gains.



Steel output is of basic importance in almost all forms of manufacturing, construction and transportation. Activity in the industry has been greatly aided this year by the record-breaking activity in the building of new pipe lines, but nevertheless it declined almost continuously from the last of April to late in August. Since then it has reversed its direction and advanced. If this increasing trend continues it will constitute persuasive evidence of an advance to better times.

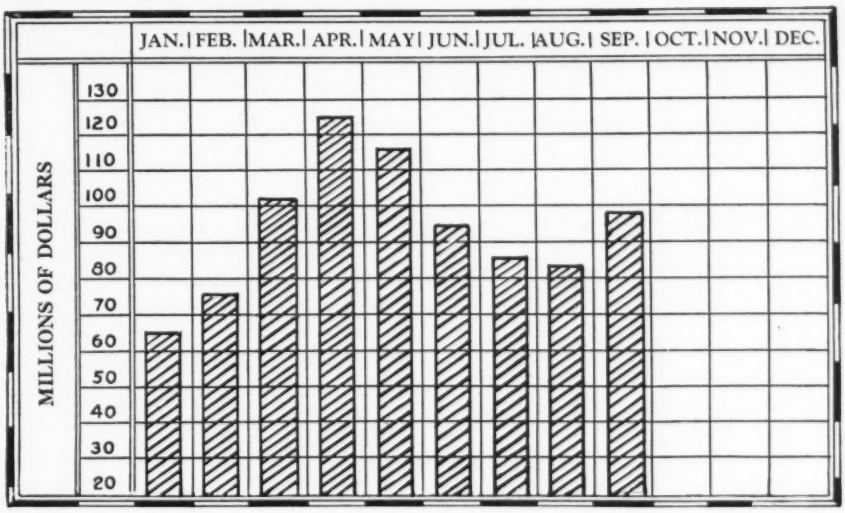
The combination of the six sets of records into a single weekly index of industrial activity is represented by the lowest of the seven silhouttes, which was at a level about 7 per cent above normal last summer, fell to about 10 per cent below last March, and then after a fair recovery declined rapidly to about 14 per cent below by the end of July. Since then it has been making a slow advance.

Increased output in some of the fundamental lines of productive industry appears to give evidence that a turn is in the making. Moreover, other economic indicators are acting as they have in past cycles when depression was giving way to recovery.

The decline of business has lasted more than a year. Bond prices have been rising for a good many months. Drives against stock prices fail to gather much headway. The long decline in commodity prices appears to have been checked, both here and in some foreign countries. This may be a real turn.

---

* Reprinted from The Cleveland Trust Company Business Bulletin.



The chart shows the trend of residential building for 1930. It will be noted that this type of construction for September made a gain over the three preceding months. In the years 1928 and 1929 the month of September was one of the poorest months for residential building, while this year September is the fourth best month.

Residential Building Gains in September

RESIDENTIAL building contracts awarded in the 37 states east of the Rocky Mountains during September were larger than in any month since May, according to figures just released by F. W. Dodge Corp. It will be noted on the accompanying chart, which shows the trend of residential building only for the first nine months of this year, that April, with a total of some $123,000,000 made the best record. May was second best and it was not until last month that residential construction, which is such an important factor to the plumbing and heating industry, showed a gain over its preceding month. In fact, September was the only month since April to accomplish this feat.

While the total amount of residential construction contracted for this September failed to equal by a rather wide margin similar construction work in the corresponding month for 1928 and 1929, the record made last month reveals some interesting facts:

In 1928 September was the eleventh best month of the year from the standpoint of residential construction, and in 1929 it was tenth in line. This year, however, September has made the fourth best record of any month in the year thus far.

A glance at the chart will show that September of this year made a gain over June, July and August. During the first nine months of 1928 September was the poorest month with the exception of January, and in the corresponding period of 1929 September was the lightest month in point of residential construction.

Red Tape Stops House Building, Delegates Told

THE decrease in residential construction reported in the first half of 1930 is not the result of business depression but of "a lack of home-owning propaganda, the presence of red tape in the home-owning transaction, and a wrong attitude on the part of the public toward how to figure property values," according to Fenton B. Turck, Jr.,* of New York City, chairman of the National Building Survey Conference, and vice president of the American Radiator Co.

Mr. Turck said of the 50 per cent drop in residence construction reported for the first half of 1930, only 15 per cent could be attributed to business depression. The other 35 per cent of the people who would have built, he said, had the money, but either were not sufficiently educated to do so, or were discouraged by the red tape involved in home building.

The speaker lauded the building and loan agencies, which have taken steps to eliminate some of this red tape by helping the home owner in material specifications, the selection of contractors, inspection of work and other important details. He referred particularly to the Realty Co-operative Building and Loan Association in New York, with assets of over $80,000,000, which is setting up an extensive display of building materials and equipment so its depositors and borrowers can gain first hand knowledge of what is available in this field. Such service, he said, will meet the problem of cessation of residence construction in this country, from which more than 60 industries and businesses have suffered, by thus encouraging the public to again undertake home building.

A recommendation that taxes on real estate be reduced and that the burden of home-owning be made easier through quarterly or monthly billing of property taxes was proposed by the public relations committee for action by the board of directors.

The committee urged that proper legislation for monthly or quarterly payment of taxes be enacted in states where this is practicable, and that building and loan associations handle such payments in other places.

* Excerpts from an address by Mr. Turck before the convention of the United States Building & Loan Association.

Letters to the Editor

Digging Up Prospects for Remodeling

To the Editor:

From 1910 to 1915, when there was less big contract business than there is today, every branch in the industry most comprehensively appreciated the value of many orders that were small, but carrying with them long profits. The slogan of that day was—'Don't figure a job if the competition is too close, but get the business that is gathered up in small orders and small contracts where the competition for close price is not so possible and generally less keen.'

Through neglect for bigger things, the jobbing plumber became almost extinct between 1915 and 1920; they were all hunting new work and contracts. During that time it became an era of replace with an entirely new job, don't repair with the replacement of an individual fixture.

With more master plumbers in the field today than there were in 1914, with more supply houses, with more manufacturers and a greater production capacity and a shrinkage in the volume of big work, what is left for the industry from the master plumber up to the manufacturer today?

Is it not to look about and find that which will take the place of big figures in sales or production volume with big profits in smaller sales?

I think it is generally known through the trade that any territory surveyed will show a sad neglect of digging up opportunities for installing a new bathroom or converting a store room to a bathroom, or a new sink fixture to replace a style and model that has become more or less passé in the past ten or fifteen years. Plumbing equipment in a property is no different from the motor in an automobile. Few ever pay any attention to it until something goes wrong. Even then, unless actuated to some consideration by the prompting of a progressive master plumber, they will probably make it last until it goes to pieces altogether. Yet there is not a property which a master plumber can enter for the purpose of making an inspection of the condition of the plumbing, just as a mechanic checks an automobile motor, that will not show some part worn, in need of replacement, or that has become obsolete by the creation of some thing in a more improved type in later years.

Behind all of this is the true cause of the condition and that is failure to give sufficient time to the study of developing this fifteen years buried business. Where the opportunities for doing business are less, more acute and earnest attention to sales angles and development is necessary. If the master plumber will develop the interest in digging up prospects for renovations, replacements or remodeling plumbing, devote sufficient time and study to the subject, evolve and work out a general policy or sales plan and consistently hunt for his opportunities to the extent of even pulling doorbells if necessary, the existing apathy in the industry will be quickly eliminated.

In summing up, I feel that the direction of effort is in the revival of this remodeling and renovation business that would more than keep the sheriff away from the master plumber's door. In 1910 to 1915, it made him a very satisfactory profit on his business investment.

W. H. Stanton,
Cleveland, Ohio. United States Rubber Co.,

How to Sell the Idea of Modernization

Editor, DOMESTIC ENGINEERING: — Modernization will undoubtedly receive more consideration as a field for sales effort this year than ever before because of the diminishing volume of new construction. What are the requirements for successful development of modernization business in heating? The question is one that deserves thoughtful consideration, for there is a very real possibility of loss in attempting to develop this sort of business unless the approach is proper.

Before we can modernize anything we have got to sell the idea to someone. The architect and the engineer, whom we deal with on new work, are largely missing. The owner is likely to be the "whole show." Therefore, we have got to think about the owner—about the motives that will lead him to modernize. We must think first of his profit if we are to develop our profit from selling him. We have got to show him a good investment in modernized heating equipment.

Deferred payments can help in this connection and plans for using deferred payments are available through many sources.

Where are the prospects for these modernization sales? How can they be reached? Like charity, the search for prospects can best begin right at home. Idle time of employes can be used to canvas the district. It is well to prepare some sort of card form on which the canvasser can note the name and address of the building, an estimate of its probable age, a brief description of its present heating equipment, the most probable program of modernizing and most important, the name and address of the individual who must be reached for authority. As far as possible, the preliminary information should be gathered without attempting to contact the principals.

A study of the preliminary reports will suggest the most likely possibility for further action. The next step can usually be done best by mail. Manufacturers' literature can be used in this connection to good advantage but the main thing is a letter suggesting that modernization may offer the owner added profit. The letter should make a bid for an interview. The strongest bid of this sort is one that suggests discussion only.

If the prospect is interested don't be in a hurry to quote. Tell him you will make a further study of his heating requirements and submit a definite proposal.

We wish to emphasize to the contractors that there is business to be had if they will go after it.

Very truly yours,
WARREN WEBSTER & CO.,
H. F. Marshall,
Camden, N. J. Adv. Manager.

Questions

ASKED BY READERS AND ANSWERED BY EXPERTS

Information About Double Bell Fittings

Editor, DOMESTIC ENGINEERING:—Kindly tell me something about why and where the double bell or double hub cast iron water pipe fitting should be used.

Iowa. F. L. C.

The use of the double bell or double hub cast iron water pipe or cast iron soil pipe fitting is recommended where it can be used to lessen the number of joints and also to permit the lead calked joint to be placed in an upright position.

Figs. 1, 2, and 3, elevation views, show details of laying underground water lines where it is necessary to lower the pipe to pass obstructions, such as other pipe

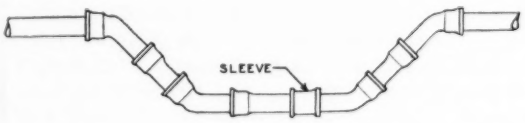


Fig. 1

lines and conduits, electrical ducts, tunnels and similar causes. These methods are used for locating the pipe line, when the dip or depression is greater than the clearance allowed by using offset fittings.

Fig. 1 shows the pipe line arranged to pass under an obstruction by using the regular bell and spigot, or single bell fittings, with the addition of a sleeve fitting, which permits all of the bells or hubs to be placed in an upright position, convenient for pouring the melted lead used in making the joints.

Fig. 2 shows the pipe installed using all single bell fittings. There is one less joint than shown in Fig. 1, but two of these joints, shown at "E" have the bells in

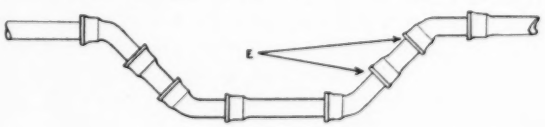


Fig. 2

a downward position. In this case, this section of the pipe could be assembled on top of the ground and then lowered into position. Should the lead blow out of these joints at any future time, it would be difficult and trying to pour melted lead into the bells, for the purpose of re-calking.

Repairs to underground pipe lines are frequently made when weather conditions are bad and the ditch partly filled with water. In this case, on account of the bells being in a downward position, it would not be convenient to calk the joints, even if lead wool or the lead prepared for joints of this kind was used.

Fig. 3 shows the use of a two bell fitting at one of the lower points which permits all of the bells to be lo-

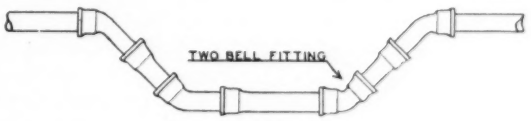


Fig. 3

cated in a position convenient for pouring and calking, either at the time of installation or for future requirements. This method and selection of fittings is recommended for underground cast iron pipe installations where it is necessary to pass under obstructions or to dip the pipe line for any purpose.

Fig. 5 shows a length of double hub soil pipe. When a number of short pieces of hub and spigot pipe are required for drainage lines, several lengths of double hub pipe can be used to an advantage by cutting measurements from each end, leaving less waste pipe than when single hub pipe is used.

Fig. 4

Fig. 5

The double hub fitting Fig. 4 can be used for connecting these left over pieces, without hubs, when the pipe is used for pipe lines located in a horizontal position.

◆

Needed Information for Computing Average Heat Transmission Losses

Editor, DOMESTIC ENGINEERING:—I would like to know how to determine the base temperature for a given locality. I note that Chicago has a base temperature of plus 5 degrees, Madison, Wisconsin, plus 5, Los Angeles, plus 50, St. Paul, minus 5, etc. These temperatures of course do not represent the minimum outside temperatures in the coldest part of the winter, and I am wondering how the base temperature is arrived at and also how I can determine the base temperature for a town, say Galesburg, in order to properly figure the radiation.

Anything that you can give me in this connection would be appreciated.

Illinois. S. F. N.

This question is answered by the Guide of the

American Society of Heating and Ventilating Engineers as follows:

"The outside temperature used in computing the heat loss from a building is seldom taken as the lowest temperature ever recorded in a given locality. Such temperatures are usually of short duration and are rarely repeated in successive years. It is therefore evident that a temperature somewhat higher than the lowest on record may be properly assumed in making the heat-loss computations.

"The outside temperature to be assumed in the design of any heating system must not be more than 15 degrees F. above the lowest recorded temperature as reported by the U. S. Weather Bureau during the preceding ten years, for the locality in which the heating system is to be installed. The outside temperature assumed and used in the design should always be stated in the heating specifications.

"If Weather Bureau reports are not available for the locality in question, then the reports for the station nearest to this locality are to be used, unless some other temperature is specifically stated in the specifications.

"In computing the average heat transmission losses for the heating season in the U. S. the average outside temperature from Oct. 1 to May 1 shall be used. This is to be that reported by the U. S. Weather Bureau during the preceding ten years for the locality in question."

The U. S. Weather Bureau gives the following information under Illinois: "Average temperature for Chicago, from October 1 to May 1, 36.4 deg. Fahr.; lowest temperature, —23; average wind velocity in December, January and February, 17.0 miles per hour; direction of prevailing wind in December, January and February, Southwest. Average temperature for Springfield, from Oct. 1 to May 1, 39.9 deg. Fahr.; lowest temperature, —24; average wind velocity in December, January and February, 10.2 miles per hour; direction of prevailing wind in December, January and February, Northwest."

Correspondent should be safe in using Chicago as a basis for his estimates in Galesburg.

◆

To Clean Soot Out of a Chimney Flue

Editor, DOMESTIC ENGINEERING:—I have heard that it is possible to clean soot out of a chimney flue by the aid of zinc. If this is so, please tell me how it can be done.

Wisconsin. A. F. J.

Yes, it can be done, and it is very easy and a very inexpensixe way to clean soot out of a chimney and the heater connection to the chimney by throwing into the fire a few pieces of scrap sheet zinc.

The zinc burns with a greenish flame, and will accomplish the result claimed.

It is an excellent custom to do this twice a year, using perhaps six or eight pieces of zinc the size of a hand.

◆

Circulating Hot Water Supply System

Editor, DOMESTIC ENGINEERING:—I would appreciate an explanation of the best method of installing a circulating system for hot water in a residence so as to have hot water at the faucets all the time.

Texas. L. F. N.

From the extreme ends of the hot water supply lines carry a return line back to the boiler, making the connection to the return pipe between the tank and the heater. This return pipe should pitch down towards the hot water tank.

Usually a check valve with a very light swing check is placed in the return line, close to the tank, to prevent back pressure in the return line.

In the ordinary home a ½-in. return or circulation pipe is large enough; if the hot water supply line is 1¼- or 1½-inch the return line should be ¾ in.

Questions Answered and Discussed by Readers

How the Question Was Answered

The following question was asked in the issue of October 4, and the accompanying answers are by readers:

With a straight run of steam main 200 ft. in length, how many expansion loops or joints and how many anchors will be necessary so that the movement in no part of the pipe will exceed ½ in.?

How Would You Answer This Question?

Why is it wrong to connect a cellar drainer operated by water pressure directly into the drainage system? How should it be connected?

Answers based upon your experience, and suitable, will be paid for and published in the November 29 issue.

1

IN ordinary steam piping for low pressure heating the expansion for 100 ft. of run is about 1 in. Consequently for a 200-ft. length of main the total movement will be in the neighborhood of 2 in. In order to reduce this down to the allowable limit of ½ in. it will be necessary to divide the main into four practically equal sections.

Assuming that the end of the main is free and moves the ½ in. allowable, it will be necessary to anchor the main one-fourth of its length from the end, or 50 ft. from the end. At the point where the anchor is placed there will be no movement. Proceeding 50 ft. more along the main from the anchor, the movement is then found to be also ½ in., and an expansion loop or expansion joint must be located there to absorb this movement. This is the exact middle of the main, being 100 ft. from the end and 50 ft. from the anchor.

Proceeding in a similar manner from the other end of the main a second anchor is placed 50 ft. from the

other end, and then proceeding 50 ft. more the exact middle of the main is reached and the expansion loop or expansion joint previously located will be found to be able to take up the ½ in. of movement coming from the other direction.

Beginning at one end of the main it will be found that the end is free to move ½ in., 50 ft. from the end is an anchor, 50 ft. from the anchor is an expansion loop or joint, 50 ft. from this is a second anchor and 50 ft. from the second anchor is the free end. Thus all the conditions of the problem are satisfied.

Newark, N. J. L. H. Oldfield.

2

FOR a straight heating main 200 ft. long, 3 anchors and 2 expansion joints or loops are required, provided the ends of the main are free to move ½ in. each. See sketch (A), in Fig. 1.

If, however, the ends of the main are bound, being so rigid that they are not free to move at all with the expansion, the line requires 3 expansion joints, and 2 anchors independent of the rigid ends. See sketch (B) in Fig. 1.

Should this be a high pressure steam main carrying, say, 200 lb. pressure by the gauge and each end is free to move ½ in., the line requires 5 anchors and 4 expansion joints or loops. See sketch (C) in Fig. 1.

These statements are based on practical experience and check up with the well known co-efficient of linear expansion of untempered steel, which is .000006.

The calculations necessary for expansion of iron or steel piping are made by a very simple rule that any steamfitter or heating contractor can easily apply to any steam line of any length and operating under any steam pressure. All he has to do is to remember the co-efficient and apply the following rule:

Multiply the length of the line in inches by the temperature increase of the line in degrees Fahr., then multiply the result by the co-efficient, .000006. This will give the total expansion of the line in inches.

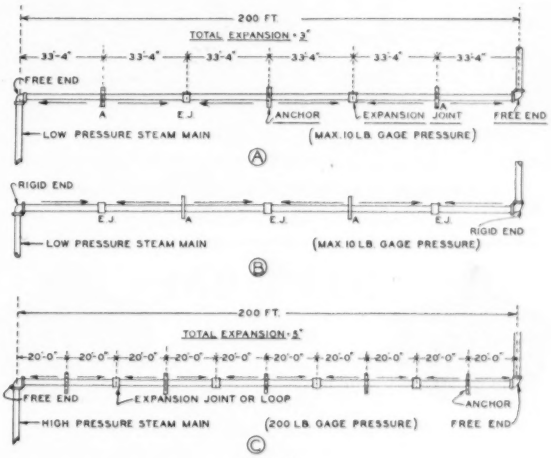
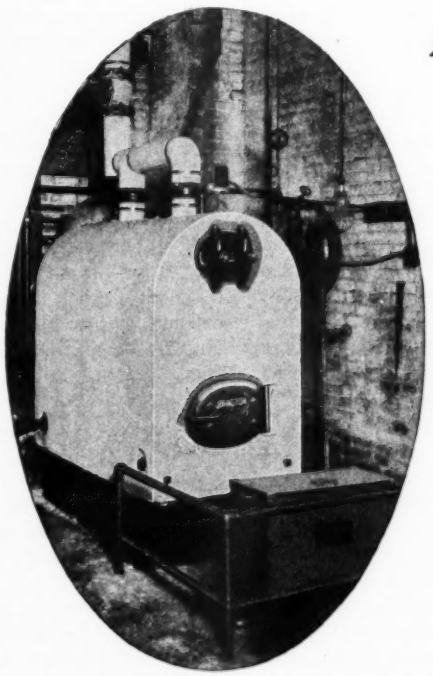


Fig. 1

This rule works out first class on all steam lines no matter what the pressure may be.

For ordinary heating mains there is a shorter and more



A MIGHTY VALUABLE HOOK-UP

Here is an Oil-Burner Boiler that really pays you a handling profit. A boiler that is sold on its merits and its reputation, and stays sold, too!

Dealers find that JOHNSTON Boiler Installations require no trips for repairs, and no replacement costs.

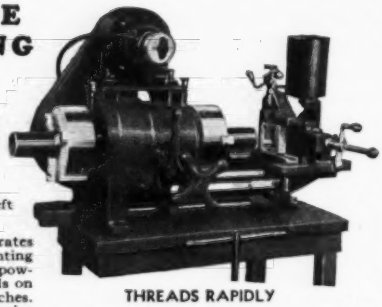
JOHNSTON installations win friends for every heating contractor. No wonder contractors everywhere are selling more and more JOHNSTON Oil-Burner Boilers. They produce a profit, and let you keep that profit—"A Mighty Valuable Hook-Up."

Have you your copy of our new catalog?

JOHNSTON BROTHERS, Inc., Box 372, Ferrysburg, Michigan

Boiler Specialists for 65 Years

CUTS PIPE THREADING COSTS!



THREADS RAPIDLY

A full-fledged Portable Pipe Machine for Reaming, Chamfering, Threading and Cutting Off Pipe from ⅛" to 2".

Uses any standard make of solid square right or left hand pipe or bolt dies.

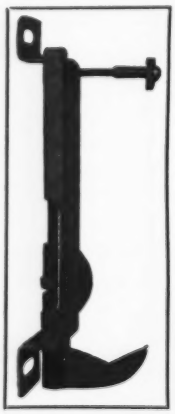
Weighs 250 pounds. Operates off either A.C. or D.C. lighting circuits. Is sufficiently powered to drive geared heads on the larger pipe, up to 6 inches. A real pipe machine at a price you can afford. Ask us about it today. Give us the name of your supply dealer.

PEERLESS MACHINE CO., Racine, Wisconsin
Eastern Canadian Representative:
J. Edwin Newsome, 161 Castlefield Ave., Toronto, Ont., Canada

DUR-A-BAL
REG. U. S. PAT. OFF.
Perfect Uniformity

The **DUR-A-BAL** is guaranteed for three years against swelling, elongating or distorting but you'll find at the end of that time that the **DUR-A-BAL** has only gotten "warmed up" to its job. *From Your Jobber.*

LAVELLE RUBBER COMPANY
320 West Illinois Street Chicago, Illinois



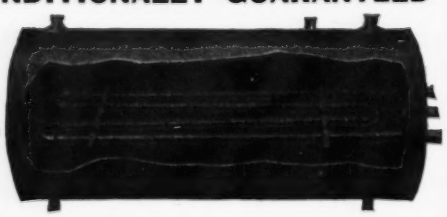
Moore Hangers

Don't install new radiators the old-fashioned way—make the job entirely modern and sanitary with Moore Radiator Hangers. Their wide range of adjustability makes your work easy. Order Moores from your jobber.

CARTY & MOORE ENGINEERING CO.
611 West Larned Street
Detroit Michigan

PNEUMATIC—STORAGE—SPECIAL
UNCONDITIONALLY GUARANTEED

STEEL TANKS



ARROW **Black or Galvanized**
TRADE MARK
THE NOVELTY STEAM BOILER WORKS COMPANY
Clare and Kloman Streets Baltimore, Maryland

simple rule: it is to allow 1½ inches of expansion for every 100 ft. of straight steam main, 0.15 in. per 10 ft. This gives ½ in. expansion for 33.33 ft. of main.

The expansion of high pressure lines should not be figured 0.15 in. per 10 ft., because the expansion is more, being according to the steam pressure, or, more properly speaking, to the temperature of the line. This class of work may be figured by the first mentioned rule using the co-efficient of expansion.

Let us figure the problem by the rule which involves the co-efficient.

The length of the main is 200 ft., or 2400 in. Assume that the line was installed when the weather was 30 deg. Fahr. and that this was the temperature of the piping when installed. The highest steam pressure that the low pressure line will probably have to stand is 10 lb. by the gauge. Steam at that pressure has a temperature about 250 degrees. The calculation then becomes $2400 \times 220 \times .000006 = 3.168$ in. That represents the total expansion of the line. Call it 3 in. in round figures, which is quite close enough for all practical purposes. This checks up with the old trade rule which allows 1½ in. for expansion of 100 ft. and which has been used by heating contractors and steamfitters longer than most of us can remember.

Incidentally the ½-in. expansion limit mentioned in the question works in fine with a 200-ft. run, making 6 expansion divisions of the line as shown. Each expansion division therefore has a ½-in. travel. The spacings between the anchors and the expansion joints consequently are 200 divided by 6 equals 33.333, or exactly 33 ft. 4 in. as shown.

In the case of the high pressure line let us assume that the piping was installed in 30-deg. weather and the steam temperature will be 387 deg. Fahr., which is about the temperature of saturated steam at 200 lb. pressure. Then we find that the total expansion of the line is 5 in., or 2 in. more than the expansion of the low pressure line. It is figured as follows:

Length of line, 2400 in.
Co-efficient, .000006.
Temperature increase, 357 deg.

$$2400 \times 357 \times .000006 = 5.14 \text{ in.}$$

Call it 5 in. in round figures.

If the maximum expansion travel in this case is limited to ½ in. for each expansion division we require 10 divisions substantially as shown in sketch C, each division taking up ½ in. of the total expansion, and no more.

The expansion may be taken up by expansion joints or by loops in the piping, according to existing conditions or specifications.

New York. T. T.

3

THIS question in the October 4 issue is rather vague, in as much as the pressure to be carried on the main is not given. Another important factor is whether the main will carry super-heated or saturated steam.

Referring to most any engineers' handbook, we find that wrought iron has a linear expansion of .00000686 and that steam at different pressures has different temperatures.

Example: Assuming that the main will be subject to saturated steam at 50 lb. gauge pressure per square inch the temperature at this pressure would be 281 deg.

Fahr. We will also assume that the main will be installed at the temperature of 70 deg. Fahr. and is to run 200 ft. We will now apply the formula. 200 × (281 — 70) × .00000686 equals .2895 ft. or 3.47 in. the increased length of the main after the steam is turned into it. So to overcome a movement not to exceed ½ in. at any point on the main, we will have to install seven anchors and seven expansion joints to absorb the 3.47 inches of travel in the main.

Should we superheat the steam the factor 281 in the formula would change to 281 plus the degrees of heat applied. This factor also changes when the pressure changes.

Chicago. G. A. R.

Accurate Estimates Lead to Profits

(Continued from Page 52)

tity required, that is, the number of cubic feet, and adding the small amount of labor necessary to pack this material in place, that is, if mineral wool or a similar substance is to be used. If pipes are to be wrapped in hair felt, this material comes in rolls and in various thicknesses, so that knowing the amount of pipe to be covered, the estimator can easily compute the amount required in square feet, adding such labor as may be needed to wrap this material around the pipes and tie it in place with metal bands or wire such as are used in pipe covering work.

Drinking fountains, cooling systems, urinals, showers, septic tanks, water supply systems, water softeners, bathroom cabinets, special appliances, etc., etc., must each be handled in the proper manner and, if used enough to justify it, there should be special pages in the Estimating Binder so that the information will be instantly available.

Plumbing old houses offers different problems, and there is also the matter of salvage to consider, in some cases of little value, but many of the old houses are regular lead mines.

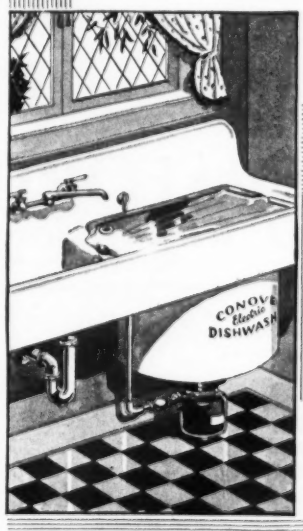
Then, too, the various types of buildings offer different problems, the construction and materials used in the construction, the purposes for which the buildings are to be used, and the location with reference to transportation and housing facilities.

And with all of the other items out of the way, we must then consider the labor, the greatest problem of them all, for we know that certain plumbers, working for themselves, will install all of the roughing in material in a six-fixture bungalow job in 2 days and finish that same job at a later date in another day, making a total labor cost of 3 days; we also know that the average cost of such installations is 7 days; and that many plumbers will require 10 or even 12 days for the same job.

Therefore the estimator must know his men and his estimate must be based on exactly what his own men can do (plus a factor for safety), providing the job is within the range of their abilities or else he must gauge his estimate by the kind of help that the market affords.

With previous costs as a basis, the labor for any certain type of building can easily be estimated, but it is the unusual buildings which call for unusual estimating powers, and under these conditions the only safe plan is to estimate the cost of labor on the cost of the material, as it stands to reason that the greater the amount of

Why not SELL



the dishwasher

made by specialists?

The new CONOVER Electric Dishwasher Sink is the outgrowth of many years of specializing exclusively in the development, manufacture, sale and servicing of dishwashers for home use. Besides a development staff of chemical, mechanical and electrical engineers and home economics experts, The Conover Company has the largest factory devoted exclusively to the manufacture of home dishwashers.

CONOVER *Electric*
DISHWASHER SINK

Washes — rinses — dries — Self-Cleansing

Highly Approved Nationally Advertised

Tested and approved by Good Housekeeping Institute, Delineator Home Institute and homemakers in many parts of the country. Advertised in leading women's magazines, metropolitan newspapers and influential trade publications.

Master Plumbers can sell and install the CONOVER Electric Dishwasher Sink with every assurance that it will satisfy both the owners and tenants of new or old homes and apartments.

Takes trap at ordinary height and many other exclusive selling features. Sizes and models to meet practically every residential requirement. All models available with drainboards on right or left, and in regular or acid-resisting enamel, in white, green, ivory or blue.

Makes An Ideal Christmas Gift

Appeals to the fast growing numbers of families that buy something practical for the home at Christmas time,—something useful to the whole family every day in the year. Let us tell you more about selling the CONOVER for Christmas.

The ***CONOVER Sink Models*** are sold exclusively through master plumbers. CONOVER Portable Models are sold only by the electrical trade.

Write for folder—"The Kitchen of Tomorrow" or for catalog—"Making the Home Kitchen Modern"

THE CONOVER COMPANY

***General Offices*—Dept. K-11, 140 So. Dearborn St., CHICAGO**

***District Offices*—101 Park Ave., New York; 115 Chauncy St., Boston; 1700 Walnut St., Philadelphia**

only $48 installed

dealer price $22.75

"Sheer Comfort" Heat Regulator is all electric—yet it costs less and gives four exclusive safety features found in no other heat regulator at any price. No batteries, nothing to wind or oil. Easy to install. Ask your jobber or write, H. M. Sheer Co., 211 Hampshire St., Quincy, Ill.

SHEER COMFORT heat Regulator

Air-Tight Steel Tank Co.
PITTSBURGH, PA.

TANKS

TANKS FOR: High pressure gas and air storage—Pneumatic water systems—Gasoline and oil storage—Oil burning equipment—Open top—Welded. ATSCO Genuine Copper Brazed tanks for high pressure—the tightest, safest, strongest tank it is possible to construct by any known process. A.S.M.E. code tanks.

BULLARD

PUTTING a Bullard Roof Flashing on a roof just simply means that you've insured yourself and your customer against any trouble from that part of the job. They're easily installed, leakproof and trouble free. *Order them from your jobber.*

THE BULLARD SPECIALTY COMPANY
Tiffin :: :: Ohio

E-Z RADIATOR HANGERS

Three styles E-Z RADIATOR HANGERS meet any and all conditions. Fully adjustable both horizontally and vertically. Easily installed at minimum cost. Recommended by leading architects and contractors. Write for complete information.

Style "H"

HEALY-RUFF CO.
770 Hampden Ave. St. Paul, Minn.
Also Manufacturers of
E-Z INSERTS and E-Z LAVATORY HANGERS

material installed the greater the amount of labor required for that installation.

Where surveys have been made, it has been found that the labor cost is from 80 to 150 per cent of the cost of the material, depending upon the kind of building, etc., etc.

This information must be worked out by the estimator and must be based on actual experience.

Connections to the sewer and water mains must be provided, and this calls for a close study of actual job conditions, the soil, the depth, the traffic, taking up of pavement and its replacement, the permits and inspection, and all of the little details which are incidental to installations in any particular city.

On the "Sewer and Water" page should be listed lead service pipe, stop boxes and curb cocks, stone pipe, soil pipe, copper service pipe and fittings for same, fittings for the stone sewer pipe, cement, lumber for curbing cesspools and clean-out holes, brick and man-hole covers, covers for cleanout holes, special valves, cost of making joints in copper and lead pipes, cost of permits and inspections, cost of moving lumber and tools to and from the job, and the cost of water meters and shut-off valves of the various sizes.

And finally, having listed all of the major items which are part and parcel of the estimate, we come to those items of cost, which are small in comparison with the rest of the estimate, but which must be added to make the estimate complete, and space should be provided for them on every estimate sheet so that none will be overlooked.

For example, we list plaster of paris, putty, paint, cutting oil, screws, nails, cartage, permits, cement for the tile pipe, bonds, board and room, railroad, street car and bus fares or auto allowance, insurance, supervision trips by owner or foreman, signs, pictures, and other items which are peculiar to certain cities.

With the labor and material properly listed and priced, the next step is to add a sum to cover the "overhead" and another sum to cover the "profit," and the final step is to have someone well versed in plumbing, check the complete estimate, verify the totals, and certify to the correctness of the proposal.

A close study of various business statements for years past reveals the fact that almost all contracting work is being handled at a financial loss, due to the fact that there is not sufficient margin between the actual installation cost and the contract price.

There are very few, if any, plumbing and heating contractors who can operate a business on less than 15 per cent overhead, to which amount the contractor should be entitled to at least 10 per cent profit, always bearing in mind that both overhead and profit are based on Selling Prices and not on Estimated Costs; therefore with 15 per cent for overhead and 10 per cent for profit, a total of 25 per cent, we arrive at a selling price in the following manner:

Deduct 25 per cent from 100 per cent (the 100 per cent represents the selling price) and divide the estimated cost of the job by 75 per cent.

Thus, if $150.00 represents the estimated cost of a certain job and we divide this $150.00 by 75 per cent, we arrive at a selling price of $200.00.

To prove the correctness of these figures, the overhead of 15 per cent, based on sales, is 15 per cent of $200.00,

or $30.00; and the profit of 10 per cent is 10 per cent of $200.00, or $20.00; making a total of $50.00; and $50.00 deducted from $200.00 leaves the original estimated cost of $150.00.

On the other hand, if we merely add 25 per cent to the $150.00, we arrive at a selling price of $187.50. Fifteen per cent of this amount is $28.12. Deducting $28.12 from $187.50, we have $159.38, and with an estimated cost of $150.00 we have a profit margin of $9.38, less than one-half of what it should be, had the overhead and profit been based on selling prices and not on estimated costs.

We suggest, therefore, that you study your overhead. Know what it is and apply it to your estimated costs.

If your overhead is either greater or less than 15 per cent and if you desire a profit greater than 10 per cent, proceed in the same manner as outlined above, but use the figures which prevail in your own business.

Your overhead budget should include all of the items listed by the National Trade Extension Bureau in its Chart of Fixed Charges or Operating Costs. You will then be able to smile when told to come in and sign the contract, instead of putting on that worried look and wondering what you omitted from your cost sheet to land the job. And in addition, knowing that you are right, make your first price your last price and stand pat. Cutting a low bid still lower because the "other fellow" is said to have submitted a lower bid leads to the poorhouse and the bankruptcy court.

(To be continued.)

Chicago Contractor Holds Up Sales By Pushing Remodeling

(Continued from Page 42)

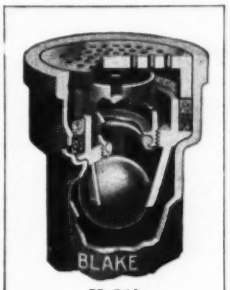
anything which he does not himself understand thoroughly.

"For that reason my men are instructed not to try to answer questions if they cannot speak as experts. The prospect will know it if they try. You know, you may never have hung wallpaper," he continued, "but if the paper hanger didn't do a good job you know it. You may not know how to drive a nail straight, but if the carpenter didn't do a good job you know it. It's the same with a salesman. The prospect knows the minute he's out of his depth, and he loses confidence.

"The salesman must win confidence, or he will not make sales. My men do not only use their engineering knowledge for selling. They use it to win confidence. Suppose a prospect wants a radiator moved. Don't you think it makes for confidence if my salesman figures the job right there on the ground, jots down what's needed, the time it will take, and then adds it all up in the presence of the prospect and says: 'That's what it will cost?' Of course, it does. And it doesn't give the prospect several hours, or maybe a whole day, to think about the job, and to worry about what the price is going to be. He knows it immediately. That's an advantage over going back to the office to figure the job."

Mr. Jensen instructs his salesmen not to strain for an order or to appear too anxious to get the prospect's signature, as this often kills a possible sale. Another rule salesmen for this company observe in their calls is that of covering only one product during any one interview.

K-552—Blake Backwater Valve for Caulking Into Soil Pipe Hub



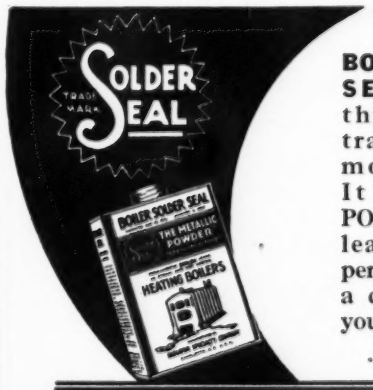
K-552

Made for 4-inch pipe only. This is our Blasco Valve arranged to caulk into hub. The fork at bottom keeps float from getting away, yet permits lint, straw, etc., to pass on through.

There is nothing better than this for the purpose.

Furnished complete, with grate and float ball. Your jobber will be glad to serve you. If you have no copy of our new 170-page catalog showing the longest line of Sanitary Specialties in the United States, better write us. It's waiting for you.

Blake Specialty Co., Rock Island, Ill.



BOILER SOLDER SEAL is known throughout the trade as a "real money maker." It is a metallic POWDER that stops leaks swiftly and permanently. Carry a can always in your kit bag.

RADIATOR SPECIALTY CO.
Charlotte, N. C.

W. J. CLEANSER will thoroughly clean any hot water, steam or vapor heating system. For new installations it is just the thing for removing oil and dirt. Prevents foaming and priming.

Order a trial can today.

If a salesman goes out to sell a home owner an oil burner, he sticks to the subject of oil burners and doesn't jump from that to bathtubs, kitchen sinks, and so on. Those items will be covered in another call, possibly by a different member of the sales staff. This is just one more phase of Mr. Jensen's policy of concentration.

All Pipes Are Hidden
Hear Hans' Health Hints:
Haven't hundreds heard how Hans Heats homes healthfully? Hear's how Harry had his home heated.
Harry had hazardous home heating However, he had Hans help him heat his home Hans has handled Harry's heating honestly, having had his happy hustlers hustling Hans Healthy Heat hourly Hence Harry has hale, hearty health, having Hans Healthy Heat habitually
Hans has his hobby, heating He has helped hundreds heat homes habitably He has helped Harry Here's hoping hundreds heed his humanely honest healthful heating hints
Here's Health—Hans Healthy Heat
Tel. Berkshire 7801-7802
HANS JENSEN HEATING CO.
Specialists in Apartment Buildings
2335 N. Clark Ave.
Chicago, Illinois
Certified Heat
Hans Healthy Heat

Blotters carry the Jensen sales messages, too

Time Payments Bring New Business

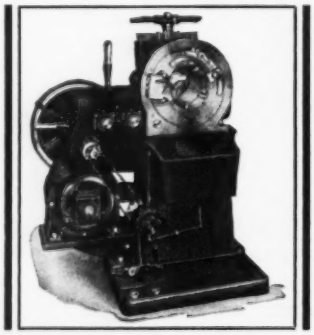
The Jensen company does a great deal of business on the time payment basis and finds that such a plan has brought considerable extra sales. The company itself handles paper up to twelve months, and has carried as much as $80,000 in time payment business at one time. In his notes and contracts for time payment work, Mr. Jensen inserts a clause expressly reserving the lien rights. Mr. Jensen points out that it is generally believed that notes extinguish lien rights, but his investigations go to show that they can be expressly reserved in such notes and contracts. Installment purchases extending over a twelve-month period are turned over to a finance house. Mr. Jensen believes the customers who buy on the yearly basis are the most dependable of the time payment customers.

In making replacements in old buildings or doing remodeling work, Mr. Jensen will frequently make an allowance on the equipment being removed.

Service Truck Makes New Friends

The company maintains a service truck which, incidentally, Mr. Jensen regards as a vital necessity, for, while the service car and the service man barely pay for themselves, the service to old customers becomes, in the long run, an invaluable asset. Considering, also, that service to home owners who have not previously done

What happens when you've got to add 10 hours or more?



When you've got to add ten or more hours of labor to your bid, you lose the job. And that's what happens when you haven't got adequate pipe threading and cutting equipment.

If competition is getting in on those jobs that you used to have "cinched", investigate the Merrell line of pipe threading equipment.

Write today for full details.

942 Curtis Street **MERRELL** Toledo, Ohio

PIPE THREADING (for BETTER threads) MACHINES

A Pipe Machine for Every Purpose — 1/4" to 12" Capacity

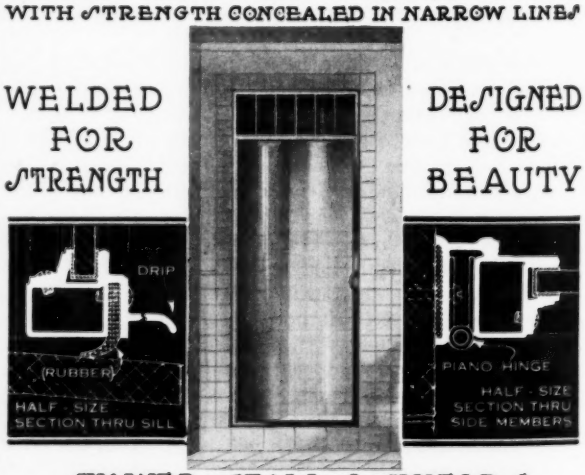
ZOURI · STURDIWELD

A NEW SHOWER STALL DOOR

WITH STRENGTH CONCEALED IN NARROW LINES

WELDED FOR STRENGTH

DESIGNED FOR BEAUTY



SHOWER STALLS, SHIELDS, AND BATH ENCLOSURES

IN CHROMIUM, DUPLEX NICKEL PLATE, NICKEL-SILVER AND SATIN BRONZE

The Zouri Company

GENERAL OFFICES, CHICAGO HEIGHTS, ILLINOIS

INTERNATIONAL DISTRIBUTION

ASSOCIATED COMPANIES
MODERN BRONZE STORE FRONT COMPANY
STANDARD STORE FRONT CONSTRUCTION CO.
INTERNATIONAL STORE FRONT COMPANY

business with the firm is frequently rendered, and always with the utmost attention to the meaning of the word "service," many new friends are made through the instrumentality of the service truck.

In line with his efforts to help his old customers improve their present equipment and add new conveniences to their homes, Mr. Jensen has directed their attention to such things as gas and oil burning heaters, mechanical refrigeration, washing machines, indirect water heaters, humidifying equipment, automatic water feeders, pressure control systems, fuel oil burners, water softeners

Dear Sir:

Have you seen the latest in clotheswashers?

Its washing ability surprises everyone. No hand rubbing of cuffs and collars with this washer. It has a cleansing water action you would not have thought possible. You ought to see it wash. Everything from overalls to lingerie comes out clean.

It has a one-piece tub, perfectly smooth inside, not a single bolt head, cleat or joint. In fact, the inside as well as outside is enameled with Flint-gloss, a special, hard, durable, acid-resisting enamel that soap ingredients, minerals in water, body acid or soil in clothes cannot affect. It is smooth as glass. It simply cannot injure even your delicate garments.

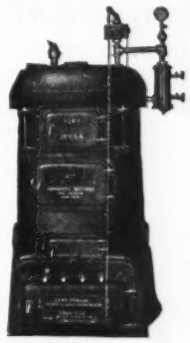
Speed? – it has plenty. Easy to operate? – very. Convenient? features no one ever thought of before. Appearance? – choice of six exquisite colors – the most beautiful clothes washer in America and it stays beautiful. Construction? – a mechanical masterpiece. Price? – no higher than other good washers.

Name? – _____Electric Clotheswasher. It's made by the _____, whose plumbing fixtures we recommend and sell because they please discriminating buyers.

Take a few minutes now. Read the interesting folder which we are enclosing. Then see this remarkable clotheswasher in action – here at our display rooms. Or let us bring it to your home and do a washing FREE. Just 'phone us.

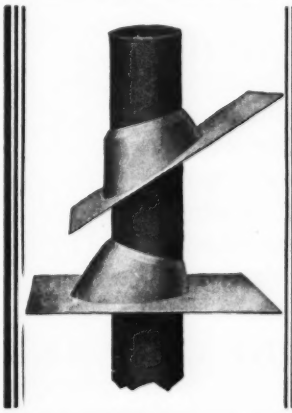
Yours very truly,
HANS JENSEN HEATING CO.

YORK
ROUND STEAM HEATER



A *Steam Heater* of Exceptional Value, Built for Endurance.
CONSERVATIVE RATING
Send for Circular

ABENDROTH BROTHERS
"Nearly a century in business"
Factory and main offices
PORT CHESTER || NEW YORK 28 Y-S-4



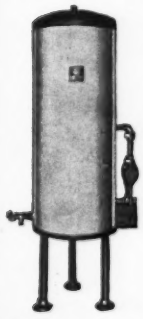
JUNIOR
Cast Lead
FLASHING

For a rigid, leak-proof, quickly applied flashing, use the Junior Cast Lead Flashing.

Makes a neat appearing job that lasts for the life of the roof.

From your jobber

Simplex Manufacturing Co.
2044-46 N. Ashland Ave.
Chicago || Illinois



WESSELS
Electric
WATER HEATERS

Plumbers can make new profits selling to Summer homes, cottages, resort hotels, factories, etc.—anywhere that hot water is wanted and gas is not available. Full automatic and side arm models.

Get Literature

D. D. WESSELS & SONS CO.
DETROIT, MICHIGAN

LOOK FOR OUR CATALOG IN PLUMBING & HEATING CATALOG

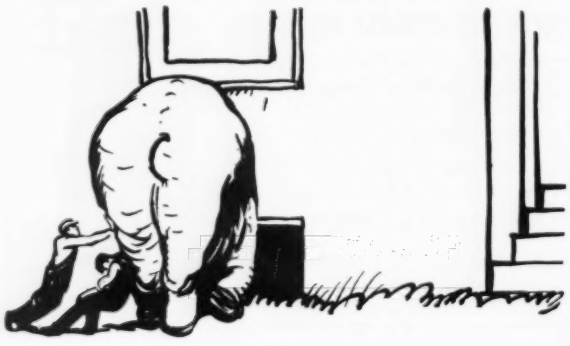
ONE of the first things your customers will ask when you call on them for remodeling work is, "How can I prevent flooded basements?"

The answer is in Wade Back Water Valves. Sell them for healthier, livable basements, free from the damages of floods and back water.

Wade Iron Sanitary Mfg. Co.
1717 Canal St.
Chicago, Ill.

Wade
Accessible Drains

Plumbers tell us why they prefer to install ALBERENE STONE LAUNDRY TUBS



"Alberene Tubs are famous for strength. They usually go right under cellar windows. So, other workmen put planks on them and slide heavy equipment into the cellar. That certainly is abusing a good product. I think they'd even try to get an elephant in that way."

ALBERENE STONE COMPANY
153 West 23rd Street New York City

Sell Showers
Scores of busy business executives in your community haven't time to fill a bath tub for their morning bath. Cash in on their early morning hustle minutes. Give them this opportunity to hop into a WEISTEEL Shower Cabinet and out again all pepped up for the busy day ahead.
Set WEISTEEL Showers on any floor, against any kind of wall and connect them up. One piece construction prevents leaks. And their low cost makes them easy to sell to individuals, homes, hotels, clubs in your community.
A postal card will bring the facts . . .
The HENRY WEIS MFG. CO., INC., Elkhart, Indiana.
WEISTEEL
INTEGRAL SHOWER CABINETS
Patented April 15, 1919

and filters, electric dishwashers, gas burners, automatic water heaters, etc. He has pushed the sale of those commodities classified strictly as specialties more than anything else during the spring and early summer months and has achieved a gratifying volume of sales as a result.

The Strength of a Conviction

Mr. Jensen not only believes in advertising but he practices his belief to the extent of investing a sizable portion of his gross profit in telling people what he has for sale. He uses the foreign language newspapers extensively as well as his neighborhood and church papers, with now and then an ad in the metropolitan newspapers. He also takes space on the annual membership lists of the churches in his vicinity.

Plumbing and heating merchandise of practically every description is kept on the floor of the showroom maintained by Mr. Jensen, some of this equipment being set up as in actual installations. A great variety of the smaller merchandise is attractively displayed in showcases in the store. Color posters placed about the store call attention to various objects on display.

In the window, a colored light sign calls attention to the window's varied display of merchandise. As the street is much-used, the window attracts patronage.

Training the Master Plumber of Tomorrow

(Continued from Page 85)

for the employer to give unqualified aid in producing the supply he is going to need so badly.

We have seen the boys or young men at work on these jobs, and it was a worth-while sight. You may be sure that when a boy is working at an honest-to-goodness plumbing job that has got to stand the water test and the air test, and be inspected by the plumbing inspector, the boy puts all he has into his work, and he takes far more interest in it than in a stack or a bathroom that he installs in the school work room, and which he knows is due to be torn down later.

Figs. 1 and 2 show the idea of the Bridgeport remodeling job in the three-family house. Fig. 1 shows the original floor plan and Fig. 2 shows the way in which the two bathrooms were provided. This layout is the work of one of the students.

Last year the school job was also a remodeling proposition, and the general features are shown in Figs. 3 and 4. The former shows the floor plan before alterations, and the latter the changes that were made.

Remodeling Becomes Problem

It should be stated that the remodeling of the plans in each instance was given to the plumbing class as a problem. This is what we call a wonderful thing for a plumbing class to work out.

In Fig. 5 is shown an elevation of the original plumbing connections, and in Fig. 6 the remodeled connections.

Figs. 7 and 8 are two other elevations made by another Bridgeport student, the kitchen stack and the bathroom stack for one of the remodeling jobs installed by that school. **(To be Continued)**

A. S. H. V. E. Officers to Visit Chapters

President L. A. Harding, Treasurer C. W. Farrar and F. C. Houghten, director of the Research Laboratory of the American Society of Heating and Ventilating Engineers will visit the Pittsburgh chapter of the Society on November 3; the Michigan Chapter meeting at Detroit on November 10; the Philadelphia chapter November 13; the New York Chapter, November 17; and the Massachusetts chapter, meeting at Boston on December 1. During October, the officers visited the Illinois, St. Louis, Kansas City, Wisconsin and Minnesota chapters. Secretary A. V. Hutchinson attended the opening meeting of the newly organized Southern California chapter in Los Angeles and the Pacific Northwest chapter in Seattle.

The topic chosen by President Harding for his talks at the various chapter meetings is "Utilization of the Sun's Energy." Mr. Houghten will speak on "Effect of Solar Radiation on Heating and Ventilating Problems." Mr. Farrar, as chairman of the committee on increase of membership, will discuss the society's activities and the campaign for new members to be pushed from now until the annual meeting in January.

What's Wrong With My Approach?

(Continued from Page 64)

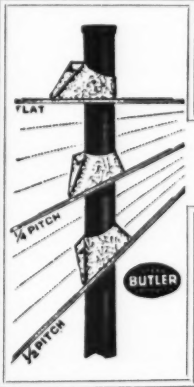
salesman who must produce tangible results. Put driving power behind the quota. If the day hasn't produced, there still remain three good working hours after six o'clock dinner.

Change your mental attitude toward calling on new prospects. Instead of "missionary" work, get a vision of it as "production." That is what it really is, "sales production" and sales production is more important than personal supervision of labor and installation on jobs. A good foreman can do that, but don't forget it takes a man of equal quality as a salesman to produce the business before it reaches the foreman. Appreciate your real value when working in this capacity.

There is an excellent angle in the plan you adopted to better regulate labor charges on repair work. Separating the time spent in actual work on the job from the traveling time and showing the latter as a service expense is not a new idea. I have known of it being employed by a master plumber in Jersey City, N. J., and another in Newark, N. J., for at least fifteen years. The result of that system, together with keeping the men from traveling back to the shop, has kept these two shops always busy.

After analyzing your work with the first prospect, and knowing why you failed to get very far, try out the same tactics with the other two and we think you will find you worked just a little too fast—at the beginning. Wait until you have established yourself solidly, after introducing your name and business. You can't help finding something of interest that will cause the door to open a bit wider; sooner or later, it will swing wide open with an invitation to enter, sit down and then take as long as you please. The "approach" must be considered as the opportunity to win attention by engaging the interest of the prospect in something actually needed.

The
SUPERIOR SHOWER HEAD
Always ready for use—No holes to clog—Spray adjustable, fine or coarse.—Uses 50% less water
PRICE: 55c and up
Sold by Leading Jobbers
MILWAUKEE FLUSH VALVE CO.
Milwaukee • • • Wisconsin



MAKE Overton Roof Flashings standard equipment on all your work — remodeling and new. Then you'll know that your customers will never have leaky roofs that crack plaster and add to decorating costs.

OVERTON

Your jobber has Overtons on hand all the time or can get immediate delivery. Insist upon Overtons.

BUTLER MFG. CO.
Minneapolis : Minn.

The Plumber's JOB-the Plumber's PROFIT

The Admiral with extended receptor and curtain

Fiat Shower Bath Compartments and Shower Doors

Whether building or remodeling . . . FIAT Shower Bath Compartments and Shower Doors mean double profits for you. Profit on the sale and Profit on the installation.

FIAT Shower Compartments are made in many sizes and designs . . . are of knock-down construction and can be installed on rough or finished floors. Permanent . . . absolutely leak-proof. Easy to install.

Write for full particulars.

FIAT METAL MFG. COMPANY
1211 Roscoe St. Dept. 611 Chicago, Ill.

FLOOD CONTROL! *for every basement*

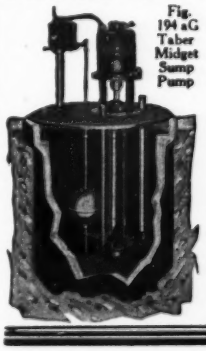


Fig. 194 aG Taber Midget Sump Pump

New LOW PRICES now remove the only possible objection to Taber Sump Pumps.

A Taber Sump Pump installation is Positive Automatic Relief from flooded conditions in basements.

Once installed, Taber Sump Pumps need no servicing . . . thus they will save you money.

Write for description and prices. See Page 923, Domestic Engineering Plumbing and Heating Catalog.

TABER
TABER PUMP CO. *Est. 1859*
290 Elm Street, Buffalo, New York

Woman's Page

At the recent convention of the Women's Auxiliary to the National Association of Master Plumbers, Joseph A. Maynard, then president of the Eastern Supply Association, addressed the auxiliary. In defining the accepted channels of distribution, the interests of which are each dependent upon the others, as forming a triangle with the manufacturer at the apex, and the wholesaler and master plumber at either corner of the base, he said that this should now be changed to a square with the Women's Auxiliary as the fourth corner. Mr. Maynard's simile shows clearly the importance which he attaches to the work of the women's auxiliaries. Leaders in the industry appreciate in an increased degree the value of these organizations.

≈≈≈≈≈≈≈≈≈≈

Detroit Auxiliary Active in Needle-Work Guild

The Women's Auxiliary to the Detroit Master Plumbers' Association held its monthly business meeting on Tuesday, October 7, with a good attendance. The question of the organization's contribution to the Needlework Guild of America (of which the auxiliary is "Branch 72" with Mrs. Minnie Marquardt as chief director) was discussed. The workers in the auxiliary are very busy now, gathering in and making the various articles of clothing, as the time when everything is to be delivered to headquarters, is drawing near. All the members are very much interested in this great work, and feel it a privilege to be able to help such a worthy cause. The Detroit auxiliary hopes to exceed its quota. Existing social conditions were also discussed, and it was decided to form a welfare committee, to help some of the less fortunate ones, of whom there are many. Mrs. Hazel Nawrot, president of the auxiliary, asked Mrs. M. Snyder, Mrs. Beth Collard, Mrs. M. Mesnard and Mrs. B. Brabyn to serve on this committee. No social affairs were arranged for October, as the majority decided they would like to attend the yearly luncheon of the Needlework Guild, which was to be held in the Statler Hotel on October 15. The next business meeting will be held on November 4.

Members of Scholarship Committee Announced

Mrs. W. E. McAndrew, president of the Women's Auxiliary to the National Association of Master Plumbers, has announced the members of the scholarship committee as follows:

Mrs. Charles Werner, Chairman, Jersey City, N. J.
Mrs. Chas. D. Kieser, Newton Center, Mass.
Mrs. John P. Snigg, Solvay, New York.
Mrs. Harry Shreiner, Elkhart, Ind.
Mrs. A. A. Mills, New Britain, Conn.
Mrs. C. L. Rosenfield, Rock Island, Ill.
Mrs. L. Schmaus, Milwaukee, Wis.
Mrs. C. Madsen, Woodfords, Maine.
Mrs. Carl McGregor, Winfield, Kansas.
Mrs. C. W. Wilson, Youngstown, Ohio.
Mrs. A. E. Ellington, Norfolk, Va.
Mrs. J. A. Reynolds, New Orleans, La.
Mrs. E. B. Clayton, Denver, Colorado.
Mrs. L. J. Evans, Memphis, Tenn.
Mrs. L. O. Klopfer, Minneapolis, Minn.
Mrs. Ruth Murray, Jackson, Michigan.
Mrs. Sam Rice, Oklahoma City, Okla.

Tampa Auxiliary Has Rummage Sale

During the past several months the women of the Tampa, Fla., auxiliary have been extremely busy. Mrs. Sue Williams, president of that organization, writes that a rummage sale realized a good sum. In this connection, the auxiliary is making pillow cases for the Needle Work Guild of America. A number of ladies had planned to go to the district meeting which was to have been held October 25 at West Palm Beach. An invitation was to be extended to the state president, Mrs. V. C. Grant of Daytona Beach, to visit Tampa after this meeting. One new member has been welcomed into the auxiliary recently. This organization is proud to report that two of its members have been selected by the city to give what assistance they can in a clean-up campaign. After all this hard but interesting work, the auxiliary is anticipating a Boston baked bean supper on November 6. This, incidentally, is a benefit supper.

Mansfield Auxiliary Makes Plans for Fall Meetings

The Mansfield, Ohio, Master Plumbers' Auxiliary met on September 25 at the home of Mrs. Ed. Malone. There was a full attendance, and one guest, Mrs. Arthur Roderick, was present. Plans were made for activities during the fall months. In October a comfort knotting at the home of Mrs. Ruth Marlow was planned; in November a covered dish dinner for the families, with an auction sale on the same occasion; December will bring charity boxes, baskets, comforts and good cheer. An invitation was received from the master plumbers' association to a "weenie roast." A feature of the September meeting was an instructive reading by Mrs. Lillian Lersch on the subject of ancient baths. A splendid luncheon was served by the hostess.

Cleveland Auxiliary Holds Meeting

The Ladies' Auxiliary to the Master Plumbers' Association of Cleveland, Ohio, has met each month during the summer, with a good attendance at each meeting. At the meetings, business transactions are followed by cards. The party planned for the latter part of the summer was postponed, so that the ladies might join with the Progressive Club at the picnic held at "By Heck Camp." At the October meeting, plans were completed for a luncheon

bridge, at which the committee in charge of arrangements hoped to see the members who have been unable to attend the meetings. Hostesses for the past month were: Mrs. Reid, Mrs. F. Berkowitz, Mrs. A. Keller and Mrs. E. Breuer. Ladies who carried away the honors were Mrs. A. A. Heiss, Mrs. M. Patmos and Mrs. W. S. Richmond.

Jersey City Auxiliary Entertained at Party

The members of the Jersey City, N. J., auxiliary were recently entertained by the president, Mrs. Louis Kull, at a bridge and bunco party in her home. Honors went to Mrs. German, Mrs. Reilly, Mrs. Sprouls, Mrs. Mulholland, Mrs. Lundberg and Mrs. Hansen. About thirty played. Supper was served, and everyone thoroughly enjoyed herself. All voted to make it a monthly bridge club.

Cincinnati Auxiliary Plans to Hold Social

On Tuesday, October 7, the Cincinnati Women's Auxiliary held its regular meeting at the Shillito Tea Room. A short business session followed and afterwards there were cards. There was a large attendance, and many of the members are anxiously waiting for the next social, which is scheduled for December. It is planned to hold these socials quite often as they are proving very interesting to the members. The committee in charge consisted of Mrs. George Doench, chairman, Mrs. Chas. Laile, and Mrs. M. R. Manley. The November meeting will be held at the plumbers' headquarters.

Ogden Auxiliary Decides on Dates for Meetings

The Ladies' Auxiliary to the Association of Sanitary and Heating Engineers, Ogden, Utah, had a delightful time at its last meeting on Tuesday evening, October 7. It was decided to hold meetings on the first and third Wednesdays of each month. Mrs. Sneddon of Salt Lake City was present and explained group insurance. All the ladies expressed their willingness to do some sewing for the Martha Society Nursery. After the business meeting, bunco was played, with Mrs. Bishop winning honors. The members of the Sanitary and Heating Engineers' Association joined the ladies after their meeting, and a delicious luncheon was served by the hostess, Mrs. Milton Bachman, 2714 Van Buren avenue.

North Shore Auxiliary Gives Card Party

The Women's Auxiliary to the North Shore Plumbing and Heating Contractors' Association recently held a card party at the apartment of Mrs. McKenna at 710 Seward street, Evanston, Ill. The hostesses were Mrs. McKenna, Mrs. Krejci, Mrs. Norman and Mrs. Mergenthaler. The party was a decided success. After the card game, sandwiches were served. The auxiliary plans to have these affairs at regular intervals during the winter months.

Milwaukee Auxiliary Plans Party

The Ladies' Auxiliary of the Milwaukee Master Plumbers' Association held its first meeting of the fall season

Left to right: Mrs. E. L. Thomas, Mrs. Frank Reichert, and Mrs. George Stoehr, attending the outing of the Milwaukee Master Plumbers' Association

KNIGHT-WARE
GUARANTEED SATISFACTORY — ACID-PROOF CHEMICAL STONEWARE
"IT IS THE BODY ITSELF"

If the following facts interest you—

Economical Initial Cost—

KNIGHT-WARE costs less than most acid proof materials. Your initial cost is your LAST cost.

Economical Installation Cost—

KNIGHT-WARE is easily and economically installed. Waste and Ventilating Pipe and Fittings are hung in much the same manner as ordinary materials. Joints are easily packed and result in permanent leak and acid proof connections.

Permanency—

Positively unaffected by acids, alkalies, chemicals or corrosive solutions and gases and highly resistant to abrasion, there is no wear-out in KNIGHT-WARE. *It lasts the life of the building.*

Consult us

MAURICE A. KNIGHT
OFFICE AND PLANT
AKRON, OHIO

OFFICES:

New York City
804 World Building
Beekman 1657

Philadelphia
1600 Arch Street
Rittenhouse 6300-6301

Chicago Office
230 N. Canal Street
Franklin 4658

St. Louis Office
1st National Life Bldg.
Main 1784

San Francisco
Merchants Exchange Building
Douglas 375

Niagara Falls
309 United Office Bldg.
Niagara Falls 507

Montreal, Que.
1307 Notre Dame Street, West
Main 2625

EXPAN-HUB SOIL PIPE

Mentioning it, by name, in your bids helps get contracts. For Architects, Engineers and Owners immediately recognize EXPAN-HUB as *the* pipe of quality.

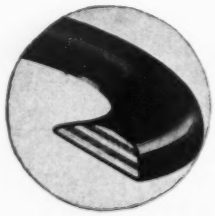
Manufactured to Uniform Specifications and sold by

ALABAMA PIPE COMPANY STRINGER BROS. CO., Inc.
ANNISTON FOUNDRY CO. THE WETTER PIPE CO.
INTERSTATE FOUNDRY COMPANY

PIATT
OIL-BURNING
DOMESTIC UTILITIES

AUTOMATIC WATER HEATERS—FORCED AIR FURNACES — CABINET HEATERS — RANGES
MOTOR WHEEL CORPORATION, Lansing, Michigan
Heater Division

LAMINATED Construction
gives big sales advantage



Laminated construction, exclusive with Brunswick, gives super-strength that defies abuse, enabling us to guarantee Whale-bone-ite Toilet Seats for the life of the building. They end replacement expense once for all. Handsome, permanent finish never wears off seat or hinge. Easy to clean. Always sanitary. Send for free cross-section and complete information of our sales proposition and co-operation. The Brunswick-Balke-Collender Co. Dept. F-28, 623 South Wabash Ave., Chicago.

WHALE-BONE-ITE LAMINATED TOILET SEATS MADE BY Brunswick

NATIONAL Control

of dampers, centered in METAPHRAM DAMPER REGULATORS provides constant, gradual movement of draft and check dampers to compensate for changing heat demands.

There is a METAPHRAM DAMPER REGULATOR for every domestic heating boiler.

Write for descriptive literature covering your control requirements

National Regulator Co., 2317 Knox Ave., Chicago, Ill.

on Monday, October 6, at which time plans were made for the Pillow-Slip Party scheduled to take place in November. The date has been set, and every effort will be made to make the affair a successful event. The party will take place November 7 in the Crystal Ballroom of the Hotel Schroeder. Pillow-slips will be given as prizes, Mrs. Louis Schmaus, secretary, has announced. The money raised in connection with the event will be used to entertain the ladies who attend the National convention at Milwaukee next year.

Previous to the fall business meeting, the local Ladies' Auxiliary held an exceptionally enjoyable party at Roundy's Food Studio in Milwaukee. Luncheon was followed by an afternoon of bridge. Roundy's is a wholesale grocery concern in Milwaukee, and it sponsors parties and social events for women's organizations at various intervals.

Youngstown Auxiliary Gives Guest Day Tea

A picnic supper for members and families of the Youngstown, Ohio, Women's Auxiliary was held on September 20th at Slippery Rock Pavillion, Mill Creek Park. Games for young and old were played. Recently the master plumbers' club rooms were transformed by lovely garden flower decorations in honor of "Guest Day Tea." Several vocal selections were rendered by Mrs. Roy Brandon who was accompanied by Mrs. F. B. Horne. Mrs. Jos. H. Lloyd gave a splendid speech on "Our City." Tea was served by Mrs. J. F. McLaughlin and Mrs. F. H. Kaercher. A short business session was presided over by Mrs. Blunt, president. November 6 is scheduled for an evening card party for members and husbands at the club rooms.

New Brunswick Auxiliary Holds First Fall Meeting

The Women's Auxiliary to the Master Plumbers' Association of New Brunswick, N. J., held its first meeting of the season on September 30. It was a joint meeting of the master plumbers' association and the women's auxiliary, and the occasion was a "welcome home" dinner given for Mr. and Mrs. David Buist, members of the organizations, who had been abroad for several months. A most enjoyable dinner was served at Pfaff's restaurant at Metuchen, N. J., after which the members participated in a miniature golf match which proved very interesting.

Indianapolis Auxiliary Holds Luncheon and Meeting

The October meeting of the Indianapolis Women's Auxiliary was held at Whispering Winds on the Brookville Road. A delightful luncheon was served, preceding the meeting. Mrs. G. T. Watson, president of the auxiliary, presided, and after the report of the secretary, Mrs. Charles F. Trosky, had been accepted, a discussion was held as to whether meetings should be held on Thursdays or Fridays. It was decided that meetings should be held on Fridays, as at present, until the first of the year. A letter was received from the Indianapolis Master Plumbers' Association telling of the regional management conference to take place on November 5. It was decided that the auxiliary act as a committee, in case it is called on to help. The business meeting was followed by a social hour, which was thoroughly enjoyed. The next meeting will be held at the home of Mrs. F. E. Irish, 1214 Parker avenue, on November 14.

Oklahoma City Auxiliary Holds October Meeting

The Women's Auxiliary of Oklahoma City, Okla., held its regular monthly meeting on Monday, October 6. The meeting was called to order by the president, Mrs. J. M. Anderson. Mrs. J. J. Cosgrove was appointed to act as

general chairman for the 1931 convention of the state auxiliary to be held in Oklahoma City during the month of May. She will appoint her committee later. After a short business session, the master plumbers were asked in, and the rest of the evening was spent playing bridge. High scores were made by Mrs. J. H. Volz and Mr. R. C. DeLautre. A buffet supper was served at the close of the evening. Mrs. B. B. Russell, Mrs. J. H. Volz and Mrs. S. G. Russell will act as hostesses for the next meeting, to be held on Monday, November 3. Those present were: Messrs. and Mesdames J. M. Anderson, K. G. Brandt, Henry Hanson, E. H. Radek, Ralph Morris, Sam Rice, Roy Patton, Charles Swan, J. H. Volz, Ralph DeLautre, S. G. Russell, B. B. Russell and J. J. Cosgrove.

One of the members of the auxiliary, Miss Emily J. Hanson, is enjoying a delightful vacation. She has been away for several months, and is now returning from Los Angeles by boat through the Panama Canal to New York, then home by rail.

Germantown Auxiliary Has New Meeting Place

The Women's Auxiliary of Germantown, Pa., held its first fall meeting in its new meeting room, at the "Waterview Recreation Center" of Germantown. The ladies all were pleased with the new room. Nine members were present, with the president presiding. A Halloween party was discussed, but it was decided to give a "ham and baked bean supper" instead, for members of the auxiliary and the master plumbers. The supper will be held during December. The next meeting will be held on the first Tuesday in November.

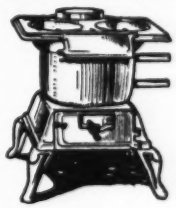
Denver Auxiliary Entertained at Luncheon

Mrs. Guy Stocking entertained the Ladies' Auxiliary to the Denver Master Plumbers' Association at her home, 2454 Federal boulevard, on October 8. At one o'clock she served a fried chicken dinner, with all the trimmings. The dinner was cooked and served to perfection, and was greatly enjoyed by all. After the business meeting, whist was played. Mrs. Hanlin and Mrs. Brickey received high scores. Those in attendance were: Mesdames Frank Bordeau, Fred Bock, J. P. Brickey, E. B. Clayton, C. R. Cooper, Robert Demmer, Frank Hanlin, William Hensler, A. S. Hubbell, R. A. Hurley, Vincent Kandorf, V. A. Kiser, H. H. Mellema, John Laverty, Carl Thurston, Fred Samson and Frank Welle. Plans for a dinner to include the men were discussed. It is to take place some time soon after deer season, and Guy Stocking and Clyde Newman, secretary of the master plumbers' association, agreed to secure the deer.

Left to right: Mrs. F. H. Samson, Mrs. G. A. Stocking, president of the Denver auxiliary, and Mrs. Robert Demmer. Photos taken at the recent convention of the Colorado Society of Sanitary and Heating Engineers

Look up these prospects for a KING TANK HEATER

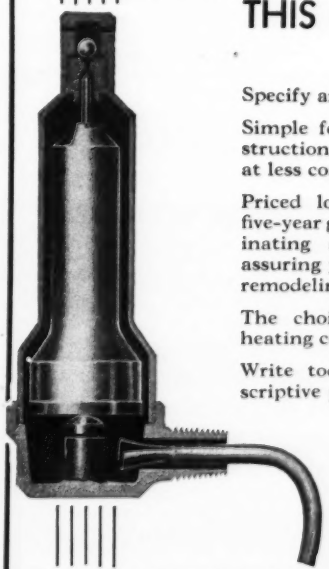
NEW houses, big or little; old houses still using stove or furnace for hot water heating; old houses with dilapidated water heating units that need replacing; store buildings; clubs; country houses; sell them King Tank Heaters! You make a good profit plus the installation charge.



Order from your jobber or write us for complete information.

OAKLAND FOUNDRY CO.
DEPT. D. E.
Belleville Illinois

GET YOUR SHARE OF REMODELING BUSINESS THIS FALL



Specify and install Kelly Valves.

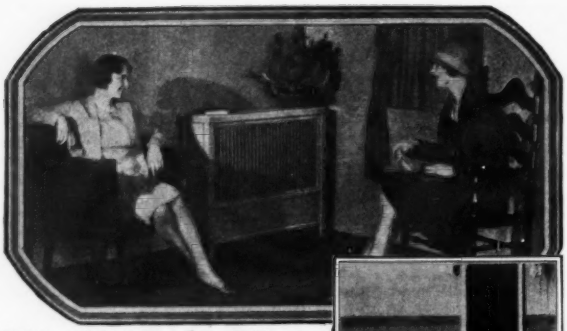
Simple fool-proof, sturdy construction permits better quality at less cost.

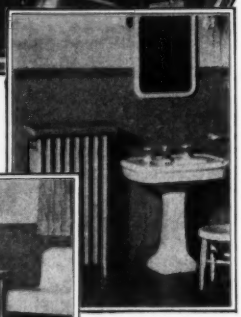
Priced lower than any other five-year guaranteed valve, eliminating sales resistance, and assuring you a larger volume of remodeling business.

The choice of discriminating heating contractors everywhere.

Write today for our new descriptive price list No. 30.

KELLY BRASS WORKS 226 W. Ontario St. CHICAGO





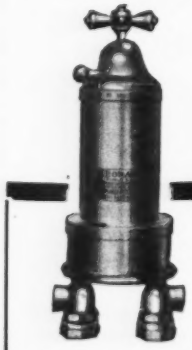
We'll Help You Sell Them!

Business conditions are changing... *have changed.* Drug stores are fast becoming restaurants. Cigar stores are being converted into soda fountains. Competition is so keen... today... that "side-lines" must be added if one wishes to remain in business. Armstrong Radiator Shields and Enclosures offer you an extra source of profit.

THE THOMAS & ARMSTRONG CO.
Radiator Shield Division, Dept. D-15
London, Ohio

Our tried-and-tested plan offers you a practical method of obtaining this profit. Write us today.

Armstrong Radiator Shields & Enclosures



Leonard Water Mixing Valves

THE laundry—the home—the bakery—the club—these and hundreds of other places need the Leonard Water Mixing Valve.

The convenience of having water at a constant predetermined temperature more than makes up for the cost of the valve and installation.

Leonard Valves are noted for their efficiency and dependability. A proper type made for every job.

Manufactured by
LEONARD-ROOKE COMPANY
Incorporated 1913
PROVIDENCE :: RHODE ISLAND

New Trade Literature

Booklet of General Electric Co.

General Electric Co., Schenectady, N. Y., has issued a booklet in which is set forth information concerning the welding electrodes of its manufacture. The booklet further illustrates and describes uses to which this product may be put, automatic welding, and all other applications. It also gives information for ordering charts, describes welding accessories, the free school of instruction it maintains, and gives a list of its sales offices.

Schutte & Koerting Co.'s Bulletin

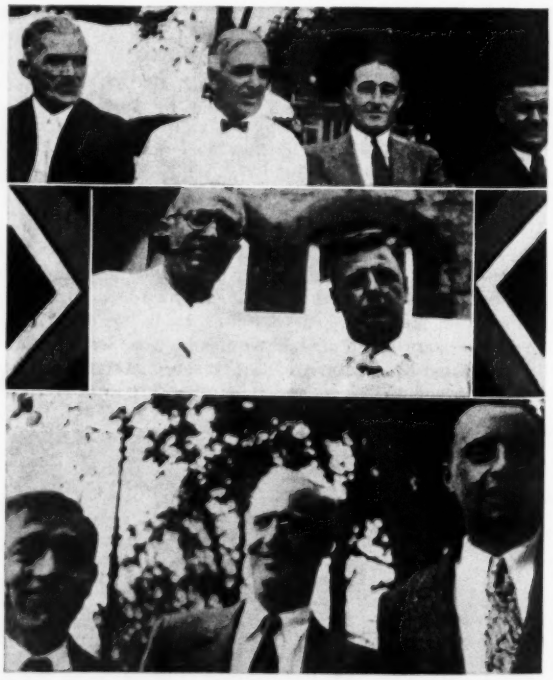
Schutte & Koerting Co., Philadelphia, has just published its Bulletin No. 8-R describing reducing valves and regulators. Motor-operated reducing valves are shown in installation diagrams. A pressure reducing nozzle in by-pass steam line, and numerous installations of reducing valves are shown in colors.

Catalog of Barnstead Still & Sterilizer Co.

Barnstead Still & Sterilizer Co., Inc., of Boston, has just issued its catalog "B," a handbook of water-distilling equipment for scientific, industrial, commercial, medical, professional and domestic purposes. A list of users of the company's equipment in various industries is given. Among the technical data are descriptions of the method of piping distilled water, and descriptions of hospital outfits for producing and storing sterile single-distilled water.

Catalog of Mueller Co.

Mueller Co., Decatur, Ill., has just issued its Catalog H, consisting of 272 loose-leaf pages, bound in handsome covers of imitation red leather, with embossed lettering.



Top row: C. F. O'Donnell, Dimock & Fink Co., Mt. Vernon; Alex Scott, Mt. Vernon; Henry W. Reis, vice president, W. A. Russell & Co.; F. O. E. Knudson, Minneapolis-Honeywell Regulator Co. Middle row: E. J. Sheppard, field secretary, Westchester County association; Arthur Fuch, White Plains, third vice president. Bottom row: A. H. Karl, Mt. Vernon; Robert Hopkin, New York City; Timothy A. Nolan, North Tarrytown. Photos taken at the outing of the Westchester County, N. Y., Master Plumbers' Association

Top picture: J. A. Addison of Statesboro and W. R. Puckett, secretary of Atlanta association. Bottom row: W. L. Turlington, manager, Crane Co., Macon; L. R. Newby, Macon; W. S. Loftis, Atlanta; Charles Wilson, Horne-Wilson, Inc., Atlanta; (in front) John Fowler, manager, Atlanta branch, Noland Co., Inc., all of the educational committee. Photos taken at convention of Georgia Master Plumbers Association

Lavatory combinations, tub fillers with concealed standing drain, combination tub and shower fittings, compression sink faucets, self-closing faucets, compression slop sink faucets, adjustable combination sink faucets, pop-up drains for lavatories, built-in fittings, mixing valves, showers, bath faucets, lavatory connections, relief valves, lavatories and water closets of various designs are among the products listed and illustrated. Besides many illustrations, the catalog contains installation charts and numerous diagrams of roughing-in measurements.

Circular of Chase Brass & Copper Co.

Chase Brass & Copper Co., New York City, is sending out a circular illustrating soap, glass and toothbrush holders, towel bars, shelves, tub soap and sponge holders, etc.

Folder of York Heating and Ventilating Corp.

York Heating and Ventilating Corp., of Philadelphia, has issued a folder describing its heat diffusing unit. Typical installations are illustrated, and a wiring diagram for automatic control, and diagrams of piping connections are included in the folder.

Circular of Teesdale Mfg. Co.

Teesdale Mfg. Co., of Grand Rapids, Mich., is sending out a circular describing its automatic pump for oil burners. A sectional drawing and an illustration of the pump are given.

Circular of Hollands Mfg. Co.

Hollands Mfg. Co., of Erie, Pa., is sending out a circular describing its combination vise stand and tool chest. The folder contains an illustration of this stand and chest. A chain pipe vise is also described and illustrated.

Circular of Powers Regulator Co.

The Powers Regulator Co., Chicago, is sending out a circular featuring its line of regulators for heating apparatus. A thermostat for factories and a thermostat for offices are illustrated.

Booklet of The Brownell Co.

The Brownell Co., Dayton, Ohio, has just issued a pamphlet describing its home stoker. The operation of

Easy Money is being made in Conversion Type Gas Burners

You have hundreds of opportunities presented to increase your profits merely by having the sales agency for COLUMBIA Gas Burners, Conversion Type.

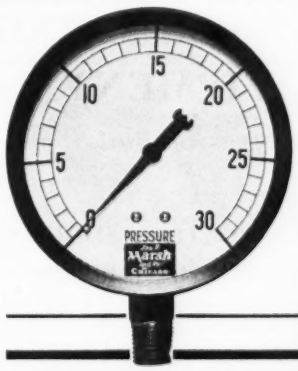
Every time you are called to a home to fix a toilet, repair a faucet, clean out the furnace or do any one of the hundreds of jobs that come your way is your chance.

You have the finest opening in the world to bring up the subject of clean heat—the conveniences and comforts of Automatic Gas Heat. Explain the safety devices, COLUMBIA'S fool-proof Electric Pilot and Lighter, absence of Baffle replacements. Tell them about the positive action, the wholly automatic control by Thermostat.

In a minute you have them interested. And in another five minutes you have made a sale bringing you a larger profit than you frequently make on a complete installation of new heating equipment.

Here is an opportunity for some easy money you can hardly afford to overlook. For more information about this new avenue to profit building, just write The Columbia Burner Company, 1645 Dorr Street, Toledo, Ohio.

But do it now, today.



This is one of the complete line of MARSH gauges

Jas. P. Marsh and Co. CHICAGO

Now! only $75

Cash, F.O.B. Factory. For 210-gallon-per-hour size. Complete with motor for 60-cycle or direct current

Profit by this outstanding value in Home Water Systems

AT $75, this New Type complete 210-gallon-per-hour Fairbanks-Morse Home Water System is unmistakably the greatest value ever offered.

It is automatic with all working parts enclosed in a handsome lacquered casing. This tremendous value, made possible by Fairbanks-Morse quantity production and world-wide distribution, will mean extra profits for the dealers that handle them.

Write now for complete information before someone else in your territory gets the franchise. Address Dept. I-11.

FAIRBANKS, MORSE & CO., 900 S. Wabash Ave., Chicago

FAIRBANKS-MORSE Home Water Systems

Gar-Wood

BALANCED HEATING UNIT

Write today for copy of new *free* book, "A New Principle of Generating Heat at Low Cost."

Responsible organizations now distributing through the heating trade should investigate the Gar-Wood franchise. Write the factory for details.

GAR-WOOD ENGINEERING CO.

4196 Bellevue Ave. « » Detroit, Michigan

As you gain new business and the confidence of your customers by installing welded pipe systems, permanently leak-free, you will develop increasing confidence in Airco Oxygen if you give it a trial.

Its uniform quality and availability in any quantity should interest you if you are welding. If you are not, we shall be glad to explain how to gain customers, more business and even cut your overhead thru its use.

Air Reduction Sales Co.
Lincoln Bldg., E. 42nd St., New York City

No. 2 Vacuum Valve

MODERN HEATING EQUIPMENT

for all types of Buildings

HOFFMAN VALVES
HOFFMAN CONTROLLED HEAT
HOFFMAN-ECONOMY PUMPS

Write for Catalog

HOFFMAN SPECIALTY CO., INC.
DEPT. RX-49 WATERBURY, CONN.

BY SPECIFYING Heggie-Simplex Steel Boilers, architects and building committees for many important structures have endorsed what Heggie's 38 years have accomplished—the most modern of heating boilers, in which scientific design combines every essential with preeminent quality.

HEGGIE-SIMPLEX BOILER COMPANY
JOLIET, ILLINOIS
Representatives in Principal Cities

Count on your Counter

to pay an extra profit when you display and push Jewell Jr. This clock-equipped Temperature Regulator sells over the counter for only $35.95, installation price additional. Your profit runs high. Show your customers how to get automatic heat with a Jewell. Minneapolis-Honeywell Regulator Co., 2801 Fourth Ave. So., Minneapolis, Minn.

A COMPLETE LINE Jewell TEMPERATURE REGULATOR

the stoker in automatically feeding coal to the fire and automatically checking the fire in mild weather is described. Included in the pamphlet are a photographic reproduction of the home stoker in a residence basement, and diagrams of installations under a cast iron sectional heating boiler, a steel heating boiler, and under an upright boiler for furnishing domestic hot water.

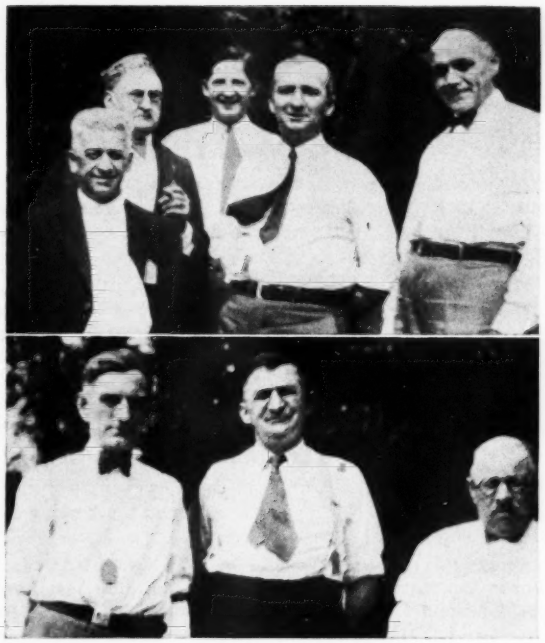
Catalog of Kewanee Boiler Corp.

Kewanee Boiler Corp., Kewanee, Ill., has just issued its Catalog No. 90 of firebox boilers. The construction of the boilers is described, and cutaway views in color are given of the brick-set up-draft type, down-draft type, portable up-draft and other types. The catalog also contains many pages of blue print diagrams and specifications.

Catalog of Erie City Iron Works

Erie City Iron Works, Stearns Division, Erie, Pa., has just issued a catalog of its welded steel heating boilers

Top row: W. T. Burns, S. A. Delvecchia and J. E. Daly, all of Wallingford, Conn. Second row: J. J. McCarthy, Crane Co., Bridgeport; F. J. Klett, Dimock & Fink Co., Stamford; R. E. Douglas, Crane Co., Stamford; A. Burkholder, C. F. Church Mfg. Co., Holyoke. Third row: J. R. Allen, Trenton Potteries Co.; G. H. Carroll, J. D. Johnson Co., Bridgeport; A. E. Russell, Bridgeport; W. G. Russell, Wolverine Brass Co. Bottom row: W. W. Bowers and W. P. Fergerson, both of Scovill Mfg. Co.; C. W. Stewart, Hoffman Specialty Co.; William H. Hoyt, Nordbeck-Hoyt-Jackson Co. Photos taken at a recent meet of the Connecticut Plumbing and Heating Trades Golf Association at Wethersfield Country Club



Top row: Sales representatives of Lehigh Valley Supply Co. Bottom row: W. F. McCarthy, past president; C. Kramer, plumbing inspector; W. Diehl, treasurer, Allentown association. Photos taken at the outing of the Allentown Master Plumbers' Association

for anthracite and bituminous coals, oil, gas and stoker firing. Several views of the boilers are given. The updraft type for anthracite coal and smokeless type for bituminous coal, and for oil or gas firing are described and illustrated. Specifications are also given.

"Color in Plumbing Fixtures"

Kohler Co., of Kohler, Wis., has issued a booklet with the title, "Color in Plumbing Fixtures." The booklet is designed for the customer. Several bathrooms are illustrated in colors—one with lavender fixtures with blended tiling, another with fixtures in green, and a third with brown fixtures. Samples of other colors are also given.

Circular of American Brass Co.

American Brass Co., Waterbury, Conn., is sending out a circular with the caption, "Meet Bill Johnson." The circular points out the importance of enthusiasm in the making of pipe, and shows scenes in the plants of the company.

Circulars of Misener Mfg. Co., Inc.

Misener Mfg. Co., Inc., Syracuse, N. Y., is distributing circulars illustrating its rotary hacksaw for cutting round holes in steel, sheet metals, cast iron, slate, wood, etc. Several types are illustrated.

"Memories"

"Memories" is the title of a booklet just issued by the American Radiator and Standard Sanitary Corp. A smaller booklet labeled "Album" is attached inside the first booklet, and in the album are scenes showing old-fashioned bicycles, old-fashioned tubs for washdays, the old heater in the parlor and the Saturday night bathtub in the kitchen. Contrasting with these scenes, are shown a modern bathroom in colors, and a basement with jacketed boiler.

Circular of John Wood Mfg. Co.

John Wood Mfg. Co., Conshohocken, Pa., is sending out a circular illustrating its copper automatic water heater. This is an automatic storage gas water heater. A cross section is given, as well as illustrations in colors.

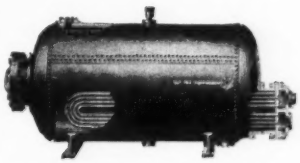
COPPER lining makes it *EVERLASTING!*

That copper is practically everlasting has been proved by the 500-year-old copper roof on the Temple of Heaven, Pekin . . . by the copper pipe unearthed near the tomb of the Egyptian King Sahoure, which is believed to be 5,400 years old, etc.

To make Patterson Indestructo Copper Lined Hot Water Heaters practically everlasting—to prevent rust from soft water—the steel shell is lined throughout with copper. Water cannot come in contact with anything except the *copper lining* and the copper tubing.

Patterson Copper Lined Heaters in service for nearly a quarter of a century are still in good condition.

We guarantee the Patterson Indestructo to prevent rusty water. *Write for the Patterson Indestructo catalog.*



The
Patterson-Kelley Co.
106 EAST 40th STREET
NEW YORK, N. Y.

Patterson INDESTRUCTO COPPER LINED
Hot Water Heater

Hinges of the Better Kind

Hinge No. 100—Close-Ruf

GRAND HAVEN BRASS FOUNDRY
Grand Haven, Michigan
Hinges for all types of toilet seats
All hinges can be furnished Crodon Plated if so desired.

Business Changes and Ventures

Business Changes

Seaside, Calif.—The Vista Del Rey Plumbing and Heating Supply Co. has opened in new quarters at the junction of Lake street and the Castroville highway, under the management of E. Raymond Gardiner.

Chagrin Falls, Ohio—O. G. Shelton has moved his plumbing and heating business from 100 Franklin avenue to 76 Franklin avenue.

Batesville, Ind.—Flodder Brothers have acquired the plumbing and heating business which F. H. Poske had been conducting in connection with his hardware business on West Pearl street. Flodder Brothers will be located on North Elm street.

Carbondale, Ill.—The Ideal Plumbing Co., for several years located in the Borger room on South Illinois avenue, has moved to the postoffice building, in the rooms formerly occupied by the American Express Co.

Camden, Ark.—The Lazarus Plumbing Shop has moved from its previous location to the building formerly occupied by the Tiebel bakery.

New York City—The R. T. Plumbing Company has filed a certificate with the secretary of state, increasing its capital stock from $1,000 to $10,000.

Birmingham, Ala.—Anderson Plumbing & Heating Company has moved into a new location opposite the city hall.

San Francisco, Calif.—H. E. Wyatt has moved his plumbing and heating establishment from 2053 Fillmore street to 2410 California street.

Bridgeport, Conn.—Paul S. Yoney, who conducted a plumbing business at 1421 Fairfield avenue, has moved into new quarters at 664 Fairfield avenue.

Lemmon, So. Dak.—W. T. Anderson has purchased the plumbing and heating business of J. E. Donovan, and will move it to larger quarters. Mr. Anderson had been in the employ of Mr. Donovan for several years.

New Ventures

Los Angeles, Calif.—C. A. Nicol, formerly connected with J. M. Fickling, has opened for business at 1847 West Florence avenue, Los Angeles, under the name of the C. A. Nicol Plumbing & Supply Co. Mr. Nicol has a well-equipped shop and an attractive display room.

Chicago, Ill.—Reliable Plumbing and Heating Co., Inc., 1052 North Damen avenue, has been incorporated with a capital of $5,000. The incorporators are: Joseph Stein, Louis Kane and J. Groner.

Milwaukee, Wis.—Bauer-Klinkert-Human, Inc., have been incorporated with 500 shares of no par value to engage in the plumbing and heating business. L. Bauer, Walter Kinkert and Clarence Human are the incorporators.

Edison, Nebr.—L. L. Shafer has opened a plumbing and heating shop.

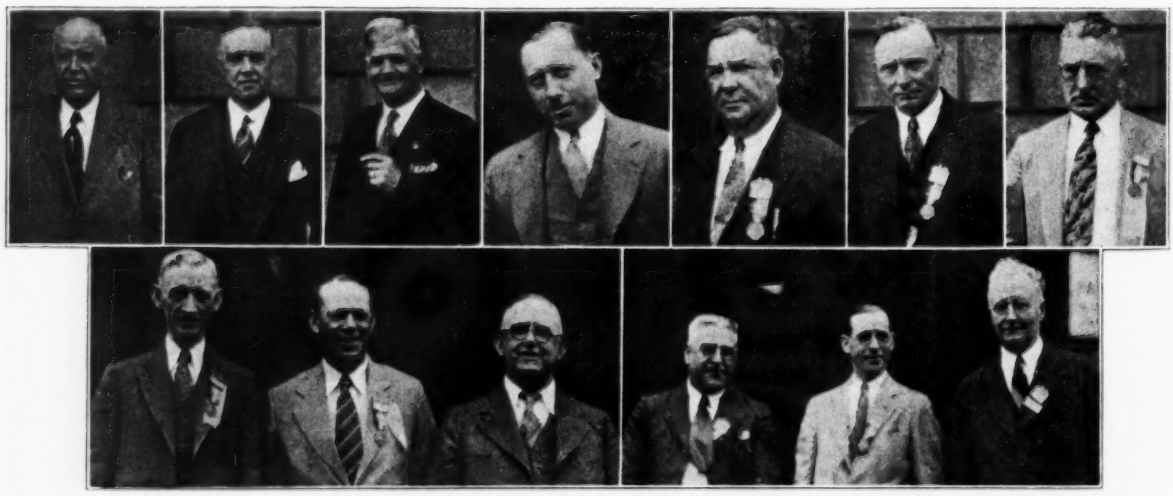
Osage City, Kans.—Osage Plumbing and Sheet Metal Works has started in business in the building just north of the postoffice. The firm is composed of J. S. Conus, Ed. O'Neil and I. Harris.

Hudson, Wis.—The new plumbing establishment of Nick Wichser has been opened at 216 Locust street in that city. Mr. Wichser has entirely remodeled the interior of the building and has an up-to-date display room.

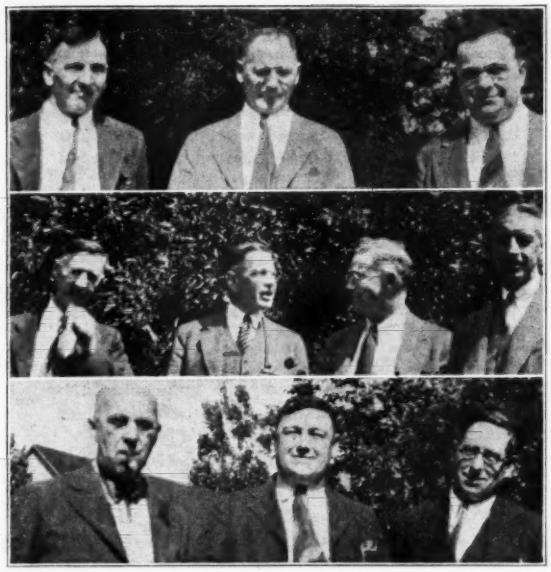
New York City—The firm of Sloan and Greenberg, Inc., has been chartered, with a capital of $10,000, to establish and operate a plumbing engineering and contracting business. The new concern is represented by Peter Wolinsky, 299 Broadway.

New York City—Joseph Berstein and associates have organized and incorporated the firm of Joseph Berstein, Inc., with a capital of $1,000, to establish and operate a plumbing engineering and contracting business. J. Kerstein, 872 Blake avenue, Brooklyn, N. Y., represents the new concern.

Buffalo, N. Y.—William Dechert and associates have



Top row: A. Selden Walker, past national president, Denville, N. J.; John C. Keene, secretary of the Plumbers Woodwork Institute and of the Institute of Manufacturers of Vitreous China Plumbing Fixtures; Philip Krusz, St. Louis, Mo.; Robert McKeown, Jr., Palmer-Mullen Co.; Malden, Mass.; John Kuhn, Chicago; A. H. Vollenweider, Ogleaby, Ill.; W. E. Miller, Washington, D. C. Bottom row: F. L. O'Brien; Joseph B. Brady and P. F. Hallaran, all of Brooklyn, N. Y.; J. F. West, Brookline, Mass.; James Hein and M. A. Brennan, both of Boston, Mass. Photos taken at Boston convention of the N. A. M. P.



Top row: E. W. Stultz, EverHot Heater Co.; William Ludlow, J. W. Fitzgerald of Frontier Water & Steam Supply Co. Middle row: Charles Evans, D. R. Ewing of Ruud Mfg. Co.; Park Hedley of Hedley & Volsinet; Walter Johnson, Buffalo manager of American Radiator Co. Bottom row: A. G. Kranichfeld, chairman of entertainment committee; William Schaefer, Joseph Carberry of Buffalo Plumbing Supply Co. Photos taken at the annual outing of the Buffalo, N. Y., plumbing and heating supply trades

organized and incorporated the firm of William Dechert and Son, Inc., with a capital of $50,000, to establish and operate a heating contracting and engineering business. S. B. Nye, local attorney, represents the new concern.

New York City—The Park Plumbing and Heating Company has been organized and incorporated, with a capital of $10,000, to establish and operate a plumbing and heating engineering and contracting business in the Bronx. The new concern is represented by Frederick Fischer, 151 West Fortieth street.

New York City—With a capital of $5,000, the firm of Kenneth Dasseville, Inc., has been chartered, by Kenneth Dasseville and associates, to establish and operate a plumbing and heating contracting business. Benjamin Sui, 132 Nassau street, represents the new firm.

Staten Island, N. Y.—Joseph Cheviron, Inc., has been incorporated with a capital stock of $10,000 to engage in the plumbing business. Among the incorporators are: T. M. Cheviron, Joseph Cheviron and E. Sutcliffe, West Brighton.

Long Branch, N. J.—With a capital of $5,000, the American Heating Company has been organized and incorporated. It is planned to establish and operate a heating contracting and engineering business. The new concern is represented by the firm of Jones and Vanhise, local attorneys.

Baldwin, N. Y.—James F. Taw and associates, have organized and incorporated the firm of James F. Taw, Inc., with a capital of $10,000, to establish and operate a plumbing contracting business. David Weisner, attorney, of Freeport, Long Island, represents the new concern.

Dearborn, Mich.—The Burton Plumbing & Heating Co., 5941 Orchard avenue, has been incorporated with a capital stock of $5,000.

Brooklyn, N. Y.—The firm of Isadore Gelvan, Inc., has been chartered by Isadore Gelvan and associates, to estab-

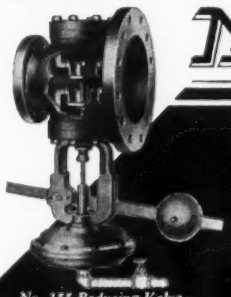
MORE HEAT AT HALF THE COST

—the result of burning No. 1 Buckwheat anthracite in a Spencer Gable-Grate Magazine Feed Heater.

Write for the Spencer catalog. It describes the Spencer Heaters that save money for your customers and make money for you.

SPENCER HEATER COMPANY
Williamsport, Pa.

SPENCER
Magazine Feed
HEATERS
for steam, vapor or hot water



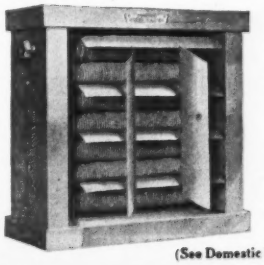
McALEAR

. . . Up-to-the-minute—not only in completeness but also in design, engineering and construction—McAlear's Automatic Pressure and Level Controls are dependable, efficient units for ALL your specialty requirements. . . . Write for complete information.

No. 155 Reducing Valve—Will control sensitively and accurately for subatmospheric pressures or any reduced pressures up to 10 pounds.

THE McALEAR MFG. CO.
1901-07 S. Western Ave., Chicago
Sales Engineers in all Principal Cities

SPEED HEATERS



Speed Heaters for all standard voltages, A. C. and D. C., are carried in stock at conveniently located storage points throughout the country. On-the-dot shipment is assured.

The Sturtevant Speed Heater is sold by CRANE CO. through dependable heating contractors everywhere.

B. F. STURTEVANT CO.
Main Offices: Hyde Park, Boston, Mass. —Chicago, Ill. — San Francisco, Cal

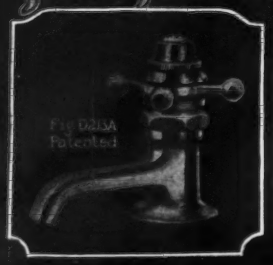
Sturtevant

(See Domestic Engineering Plumbing and Heating Catalog)

INSTALL THE
REPUBLIC
INTEGRAL STOP VALVE
FOR
GREATER CONVENIENCE

The
REPUBLIC BRASS COMPANY
1623 EAST 45TH STREET CLEVELAND, OHIO

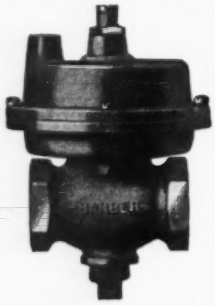
Paragon SELF-CLOSING FAUCETS with renewable seats



SMOOTH ball-bearing action. Patented "Samson" Lock, which makes Paragon handles easiest to adjust without special tools. Longer wear — better action. A wide variety of bodies and handles. Write for folder on the complete line.

Through your Wholesaler

The CENTRAL BRASS Mfg. Co.
PARAGON DIVISION CLEVELAND O.



The BARBER is a small precision gas pressure regulator, exceptionally accurate and dependable.

Fooling the Gas Meter

SHOW a customer how to fool the greedy gas meter that ticks off his dollars and you'll sell him other things. Tell him how the BARBER Gas Pressure Regulator keeps even gas pressure at the burners, and saves gas from 10% to 20%. He'll be glad to have one installed—and welcome your inspection and recommendations for repairs and replacements.

Write for more information.

The Barber Gas Burner Co.
3702-04 Superior Ave., Cleveland, Ohio

ONE OUT OF EVERY SEVEN MEN

in the Stockham Plant is engaged in inspection—
no imperfect fittings to discard when you buy Stockham

CAST IRON
MALLEABLE IRON
and
ELECTRIC CAST STEEL FITTINGS
for every pipe line need

Stop pipe thread leaks with SMOOTH-ON No. 1 in a SMOOTH-ON CLAMP

Sizes for 1-in. to 12-in. pipe.

QUICK, easy, cheap Holds for the life of the line—any pressure, any temperature, iron, brass, or copper pipe. Get Smooth-On Clamps and Smooth-On No. 1 from nearest supply house or from us.

Write for the free Smooth-On Handbook.

SMOOTH-ON MFG. CO.
Dept. 12, 574 Communipaw Ave., Jersey City, N. J.

SMOOTH-ON

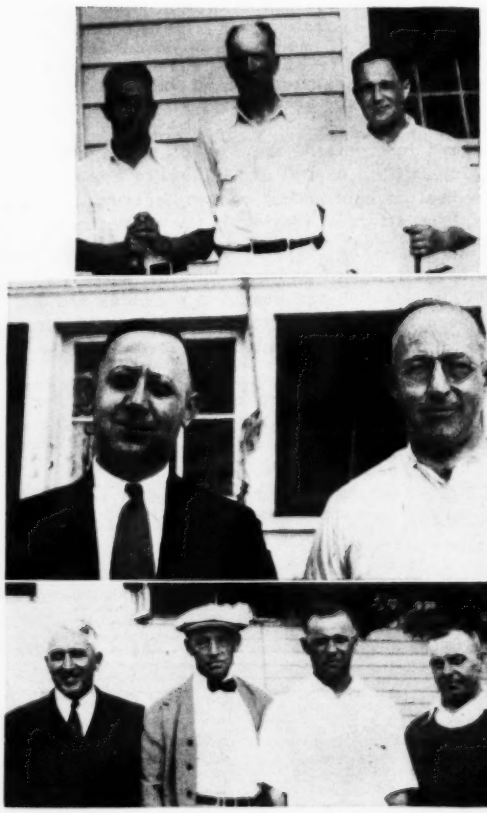
lish and operate a plumbing, engineering and contracting business. The new concern is represented by Anthony Cogliano, 141 Rockaway avenue.

New Haven, Conn.—Guaranteed Heating & Plumbing Co., Inc., has been chartered to conduct a plumbing and heating business with $10,000 capital. The incorporators are: A. B. Colandro, Jessie L. Start, Elsie Colandro and Jay W. Start.

New York City—Charles W. Barnett, and associates, have organized and incorporated the firm of Charles W. Barnett, Inc., with a capital of $5,000, to establish and operate a plumbing contracting and engineering business. The new concern is represented by I. E. Maginn, 505 Fifth Avenue.

Gowanda, N. Y.—The Gowanda Heating and Furnace Company has been organized and incorporated, with a capital of $25,000, to establish and operate a heating engineering and contracting business. The new concern is represented by William J. Wilber, local attorney.

New York City—The firm of Ben Goldin, Inc., has been chartered, with a capital of $3,000, by Benjamin A. Goldin and associates, to establish and operate a plumbing and heating contracting and engineering business in the Bronx. Morris Miller, 32 Court Street, Brooklyn, represents the new company.



Top row: J. R. Burns, Burns & Greynan, Hartford; Harry Coe, Sloan Valve Co.; J. L. Fierberg, J. L. & M. A. Fierberg, Inc., Hartford. Middle row: Fred Williams and A. F. Downe, both of American Radiator Co. Bottom row: F. E. Doyle, F. E. Doyle Co., New Haven, president of Connecticut golf association; M. K. Blackwell, Wolverine Brass Co., captain; E. O. Nelson, Bridgeport, secretary and treasurer; Robert Davidson, Hartford, member of tournament committee. Photos taken at a recent meet of the Connecticut Plumbing and Heating Trades Golf Association, at Wethersfield Country Club

Pipe —— Lines
Connected by LYT

EVOLUTION

Clarence Percival Woofington was a gentleman. His mamma had told him so from the time he was born. In his home there hung a long line of his ancestors—every one of them a gentleman. It was his mamma's boast that not in three hundred years had there been a Woofington who had uttered a vulgar word.

All during his childhood Clarence Percival had the idea that he would go to college at Old Swillington, where, it was the family's boast, there had not been a year for one hundred years that a Woofington had not been graduated. There were, indeed, many Woofingtons, and every one of them a gentleman, as incapable of saying a vulgar or impolite thing as an angel would be of cussing.

Clarence Percival bade fair to outshine all his ancestors in gentlemanliness. He was tall, beautiful beyond all men, and his manners were as flawless as—as the cement walks on the Woofington estate.

It was in the year that Clarence Percival attended Old Swillington as a freshman that the family had its great shock. Some fifteen relatives, including Clarence Percival's mother, came down to see him and, incidentally, only very incidentally, to attend the football game between Old Swillington and Slopster. The family group could not find Clarence Percival in his rooms, nor on the campus. They repaired (that is the polite way to say "went"—the way a Woofington would say it in order to avoid such a vulgar, common word as "went") to the football field. In their anxiety to find Clarence Percival, they pushed through to the sidelines and spilled out onto the gridiron just as Old Swillington's quarterback slapped the ball against the—er—mid-section of a tall, presumably good-looking half, who came around the end at a gallop.

But the Woofington family group, serenely conscious of naught but its search for Clarence Percival, was by now well inside the sidelines, and the tall, presumably good-looking half had to choose either to run through the Woofington family group or to turn back into the middle of the field. He did the latter, with the result that, to a man, Slopster downed him and piled on top of him.

When the referee had pulled both teams off of the tall, presumably good-looking half, the latter arose to his feet and strode over to the Woofington family group. In tones which no Woofington had ever used in three hundred years and more, he addressed the group: "Say, what the h——l is the idea of spreading yourselves all over the scenery like a bunch of stray mavericks? Doesn't it penetrate your thick skulls that there is a football game going on and we might have made a touchdown but for you bunch of goofs?"

And now, dear reader, we must explain the words "presumably good-looking." For this tall, and really good-looking, half-back was none other than Clarence Percival, himself. But we had to say "presumably good-looking" up to now because his face was so plastered with mud as to be practically no face at all. It was more like a mud plaque.

It was his mother who first penetrated the mask of mud. With a low moan she swooned (Woofington women never did anything so vulgar as faint) into the arms of the nearest Woofington, and all that evening in their hotel suite, the family could be heard keening and wailing, like banshees, over the fallen fortune of the house of Woofington which had endured for three hundred years without a vulgarian, only, at the last, to find that a viper had been nursed in its breast. At least that is how the eldest Woofington, Clarence Percival's uncle, Edgerton Wollaston Woofington, put it.

ZOOLOGY

Teacher: "Johnny, to what class of the animal kingdom do I belong?"

Johnny: "I don't know, teacher. Pa says you're an old hen and Ma says you're an old cat, but I think you are a dear."

LEIGHTON'S GLOOM CHASER

Barbers say that bobbed hair is going out. Parents consulted on the subject indicate that it not only is going out, but it is refusing to come home at a reasonable hour.

L Y T

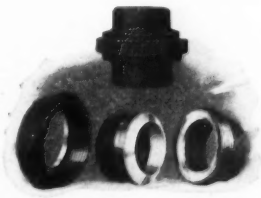
High Efficiency and Long Life

Ozite

Pipe Covering For Cold Water Lines

Ozite Pipe Covering of genuine felted animal hair, will give service for almost a lifetime. United States Bureau of Standards prove this material's great efficiency. Eliminates "sweating" or condensation in warm weather. Write today for facts and prices.

AMERICAN HAIR & FELT COMPANY
130 North Wells Street - Chicago, Illinois



TAKE ONE APART

It won't take you long to understand why Dart Unions are superior in every way once you take one apart. You'll see the TWO bronze seats that guard against leaks and corrosion. Don't forget, every joint you make with a DART is *twice* protected.

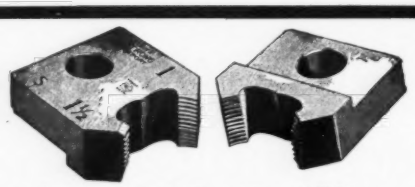
Ask your jobber to supply you.

E. M. DART MFG. COMPANY
PROVIDENCE, RHODE ISLAND

Sales Agents
THE FAIRBANKS CO.
New York Branches

Canadian Factory
DART UNION CO., Ltd.
Toronto, Canada

DART UNIONS



Send for special Booklet "B" on the Threading of BRASS and COPPER PIPE. It tells how to save a lot of elbow grease, time and tools. It's worth reading.

FREE The ARMSTRONG MFG. CO. FOUNDED 1900 OF BRIDGEPORT CONN. FREE

Improved WILHELMI Boilers

Copper construction the Hayes way makes the Improved Wilhelmi Boiler outstanding in sturdiness. Copper will resist time and corrosion. Hayes construction withstands shocks and strains. The two make an ideal combination.

HAYES MFG. COMPANY, Makers
PATERSON • • NEW JERSEY

Greater Heat — Less Cost!

When there's a HYDROLATOR on a hot water heating plant, the whole system gets more heat, and fuel bills are lower!

Temperature differential between flow and return is seldom greater than 15 degrees and often as low as 5.

Write for Bulletin 830-H.

JANETTE MFG. COMPANY
558-60 W. Monroe St., Chicago
New York
Singer Bldg., 149 Broadway
Philadelphia
Real Estate Trust Bldg.
Seattle, Wash.
Harrison Sales Co.
314 Ninth Ave. N.

Water Softener

specifications are best met by using

Zeolite Upflow Softeners

The economical and efficient method of producing soft water.

PARAMOUNT WATER SOFTENER CORPORATION

91 West St. New York

Bath a Day Movement

There is no other industry which has the opportunity to present its services to the public in so favorable a light as the plumbing industry. So closely does it affect the health of the nation, that, properly presented, and consistently presented, it could win a wider acceptance than any other. It was with this purpose in mind that the Bath a Day Campaign was started, and "The Story of the Bath" written. To date the booklet has been placed in the schools of 172 cities and towns in the United States, to be used as supplementary reading in the class.

172

Here is an opportunity for the alert association, looking for something to make this winter one of accomplishment, to start a campaign in its city that will give it columns of publicity and bring it to the attention of every home in the city.

It has been done in many of the cities where the booklet was distributed in the schools. But the surface has only been scratched. It ought to be done in every city and town in the United States where there is an association.

Association officers are invited to write for full particulars and for a complimentary copy of "The Story of the Bath." We will be glad to co-operate fully with any alert association desirous of winning favorable publicity for its members.

Little Sentences That Sell

Write one of these BLACK BOARD EPIGRAMS on your window or bulletin board each day. Many master plumbers and heating contractors find them real business getters.

Don't cry over spilt milk—call the cat.

* * *

Just as the average man reaches for fame his pipe goes out.

* * *

One seldom realizes he is wrong until he is found out.

* * *

It's very unlucky to lose $13 on Friday.

* * *

People who look for trouble never look in vain.

* * *

A fee simple is money given to the quack doctor.

* * *

Revenge is sweet, but only in the hands of a fool.

* * *

The engraver does his work at cut prices.

* * *

Love your neighbor in spite of his fence.

* * *

Real heroes act as their own press agents.

* * *

Big men with the toothache always look foolish.

* * *

When all is lost save honor some men get on their dignity.

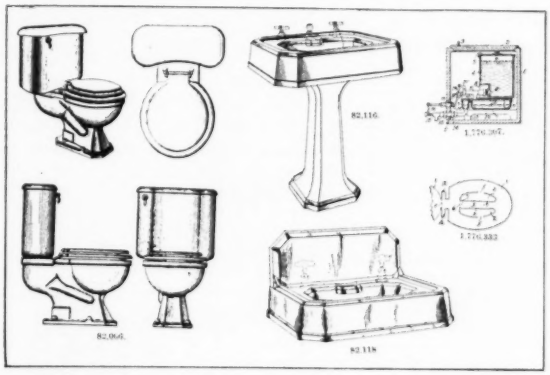
◆

Brooklyn, N. Y.—E. I. Sherman, S. M. Goldring, and associates have organized and incorporated the firm of Sherman and Goldring, Inc., with a capital of $20,000. It is planned to establish and operate a plumbing business. David and Glassberg, 1440 Broadway, New York City, represents the new company.

PATENTS

Plumbing Department

82,118. Lavatory. Carmi J. Steele, Los Angeles, Calif., assignor of one-third to Roy C. Troeger and one-third to Wallace R. Coates, Los Angeles, Calif.



1,776,307. Water Cooler. Jose Vidal Bosque, Santiago de Cuba, Cuba.

1,776,333. Sanitary Toilet-Seat Cover. Ralph Oates, Youngstown, Ohio.

82,066. Water-Closet Combination. Bert O. Tilden, Trenton, N. J., assignor to B. O. T. Mfg. Company, Trenton, N. J., a Corporation of New Jersey.

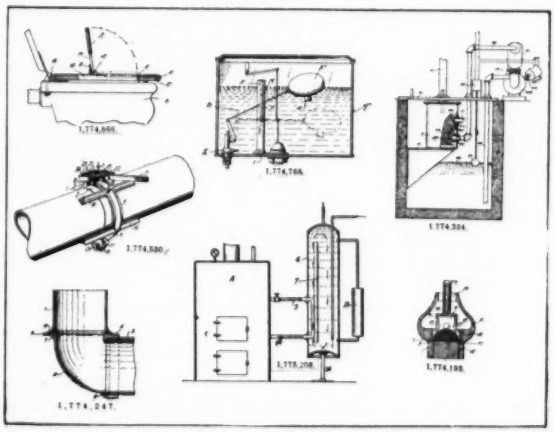
82,116. Pedestal Lavatory. Carmi J. Steele, Los Angeles, Calif., assignor of one-third to Wallace R. Coates and one-third to Roy C. Troeger, Los Angeles, Calif.

1,774,768. Flush Tank. Samuel Herbert Smith, Atlantic City, N. J., assignor of one-half to William B. Loudenslager, Atlantic City, N: J.

1,774,868. Toilet Seat. Fred Brousseau, Wyandotte. Mich.

1,775,208. Hot-Water-Heating Arrangement. John Neukam, Hawthorne, N. Y.

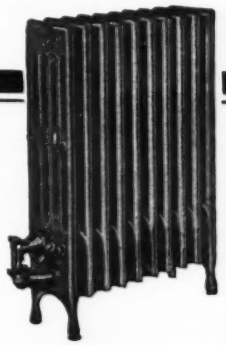
1,774,530. Pipe Clamp. Raymond J. Sheehan, Tulsa, Okla.



1,774,193. Bubbler Tip. Frank A. Bicknell, Florence, and Julius F. Best, Haydenville, Mass., assignors to Puro Sanitary Drinking Fountain Company, a Copartnership composed of Christian J. Hillis and Reuben B. Hills, Haydenville, Mass.

1,774,234. Sewage Ejector. Harry E. La Bour, Homewood, Ill.

Here's the Finest Opportunity You Have Ever Had!



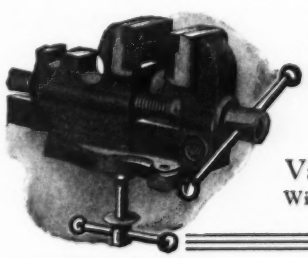
Here is a real chance to sell the kind of heating equipment your customers want. They want Automatic Gas Steam Radiator Heat because it saves them money both in spring and fall. The sales plan we have developed is "sure-fire." It will show you how to boost sales and what is more, make satisfied customers. Now is the time to act! Write us today for complete details.

TESTING LABORATORY A.G.A. APPROVED

Automatic Gas-Steam Radiator Co.
PITTSBURGH :: PA.

VANDERMAN
for time saving equipment

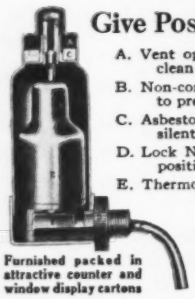
Vanderman is the name to remember when you want highest quality, greatest accuracy and biggest saving in Pipe Vises or in Steel Tool Chests. The chests are available in any size you desire. Write for Vanderman complete catalog. Have Vanderman equipment ready for remodeling profits.



The
Vanderman Mfg. Co.
Willimantic Connecticut

KEENEY Air Valves

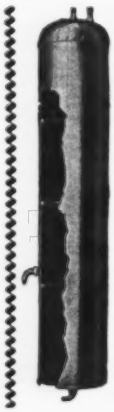
Give Positive Performance



A. Vent opening enclosed by cap insures clean Valve
B. Non-corrosive pin has bullet-shaped point to prevent sticking.
C. Asbestos muffler helps make Valve more silent.
D. Lock Nut always holds Valve in upright position.
E. Thermostatic Float.
F. Threaded hexagonal shank makes solid rest for Float.
G. Syphon Pipe placed low drains all the water.

Furnished packed in attractive counter and window display cartons

THE KEENEY MFG. CO.
Newington, Conn.



G. & C. TANKS, of Course

When it comes to the storage tanks in so many of the nation's leading buildings, builder, architect and contractor usually find it easy to agree on the kind to use. G & C Copper Storage Tanks are just a matter of course.

Write for details today or ask your jobber.

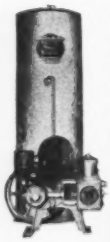
GERSTEIN & COOPER CO.
1 West Third St., So. Boston, Mass.
New York Office: 166 W. 72nd St., N. Y. C.

Canadian Agents:
G. Mason Price, 832 St. James Ct. Montreal, Quebec, Canada

LOOK FOR OUR CATALOG IN PLUMBING & HEATING CATALOG

WATER SYSTEMS FOR EVERY NEED

Automatic . . Trouble-Free



Faultless automatic control, rugged, long-life construction and low cost are just a few outstanding features that sell Westinghouse Electric Water Systems. They are easy to install and remarkably free from servicing. Write the Small Electric Plant Section, Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., for complete information.

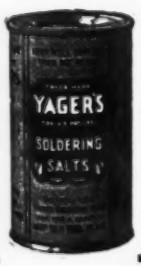
Westinghouse

ELECTRIC WATER SYSTEMS (Automatic)

D E 11-1-30

Yager's Soldering Salts for all lead work

Order from your jobber today or write Dept. "D" for free sample.



Put in a supply of Yager's Soldering Salts now. Have it on hand and use it for all lead work. Easy to handle anywhere.

Alex R. Benson Company, Inc.
Hudson, New York

For list of distributors see 1930 McRae Blue Book

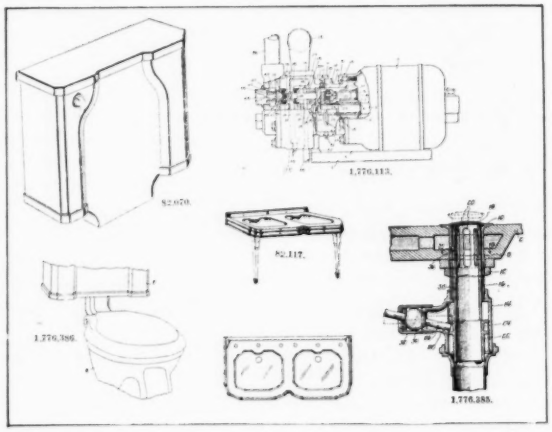
Sales Agency for Canada:
Canadian General Electric Company, Ltd.
Montreal and Toronto

1,774,247. Plumbing Connection Means. Thomas R. Tinney, Conneaut, Ohio, assignor, by mesne assignments, to Mary A. Luff, Cleveland Heights, Ohio.

82,070. Flush Tank for Toilets. Harry F. Weaver, Evansville, Ind.

82,117. Lavatory. Carmi J. Steele, Los Angeles, Calif., assignor of one-third to Roy C. Troeger and one-third to Wallace R. Coates, Los Angeles, Calif.

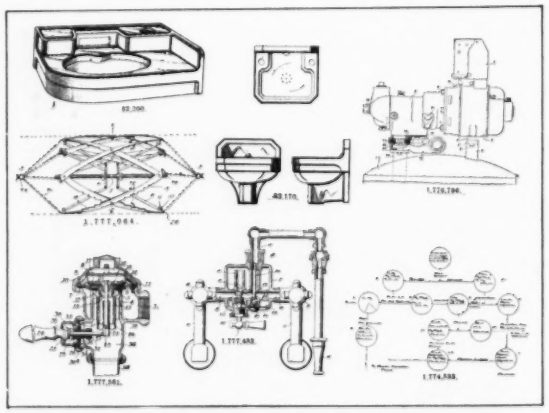
1,776,113. Pump. Charles P. Eisenhauer, Dayton, Ohio, assignor to The Duro Company, Dayton, Ohio, a Corporation of Ohio.



1,776,386. Elbow Housing and the Like. Arthur E. Hohmeister, Cincinnati, Ohio, assignor to The John Douglas Company, Cincinnati, Ohio, a Corporation of Ohio.

1,776,385. Pop-up Valve. Herman M. Hoelscher, Chicago, Ill., assignor to Hoelscher Brothers, Chicago, Ill., a Corporation of Illinois.

1,774,533. Utilization of Greensand. William Vaughan, Mount Holly, N. J., and William M. Bruce, New York, N. Y., assignors to The Permutit Company, New York, N. Y., a Corporation of Delaware.



82,170. Lavatory. Joseph R. Mayhew, Decatur, Ill., assignor to Mueller Co., Decatur, Ill., a Corporation of Illinois.

1,777,453. Soap-Dispensing Faucet. Spencer W. Seery and John P. Quinn, Baltimore, Md., assignors to McShane Bell Foundry Company, Baltimore, Md., a Corporation of Maryland.

1,777,561. Closet System. William C. Groeniger and John C. Cromwell, Columbus, Ohio.

82,200. Lavatory. Earl G. Watrous, Chicago, Ill.

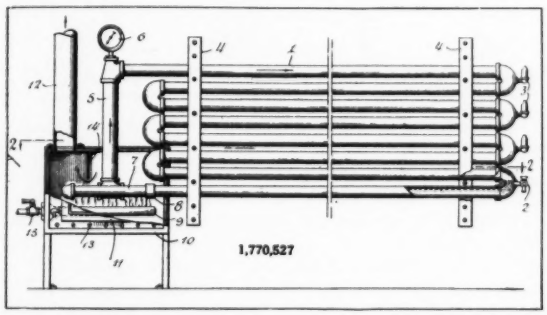
1,777,064. Sewer-Pipe Cleaner. Aubern E. Wright, Nappanee, Ind.

1,776,786. Pump. Charles P. Eisenhauer, Dayton, Ohio, assignor to The Duro Company, Dayton, Ohio.

1,775,197. Soldering Solution. Vita Habif, Detroit, Mich. A soldering solution comprising 10 per cent to 50 per cent of chloride of zinc, one-half of 1 per cent to 50 per cent of glycerine, 5 per cent to 50 per cent of alcohol, and 1 per cent to 50 per cent of water.

Heating Department

1,770,527. Heating Unit. Daniel W. Lenahan, New York, N. Y.—A self-contained steam heating unit comprising a flat coil, air valves and a water inlet for the coil, the said coil having its ends connected by a verti-



1,770,527

cally disposed chambered member, a dead-end connection from the said member forming a continuation of the coil and extending outward beyond the member, heating means for the dead-end connection and the chambered member, a casing enclosing the heating means and parts heated by said means, and a baffled outlet flue for the casing.

1,770,858. Cast-Metal Pipe and Method of Making the Same. Daniel Harvey Meloche, New York, N. Y., assignor to American Radiator Company, New York, N. Y., a Corporation of New Jersey. A process of producing cast iron pipe, which cast iron pipe will be ductile and capable of being cut or threaded at any point in its length by tools such as are used for cutting or threading steel or wrought iron pipe, which comprises producing a molten iron containing silicon 2.25 per cent to 2.30 per cent; manganese not more than .8 per cent; phorous not more than .3 per cent; sulphur not more than .1 per cent; combined carbons not more than .6 per cent; graphitic carbon not to exceed substantially 2.75 per cent; total carbons not more than 3.35 per cent; an accelerator for precipitation of the graphitic carbon; and iron approximately sufficient to complete the 100 per cent; said molten iron being heated to a temperature causing the precipitation of the graphitic carbon in a finely divided condition, and casting the said molten metal in a sand mold heated to a temperature maintaining the finely divided state of the graphitic carbon and preventing segregation of the elements.

1,776,936. Valve. Joseph Sweet, Milwaukee, Wis., assignor to Milwaukee Valve Company, Milwaukee, Wis.

1,777,047. Tool for Reaming and Fitting Valve Seats. George E. Moen, Kelso, Wash.

1,777,210. Cover for Radiators. Harry J. Lebherz, Frederick, Md., assignor to The Everedy Company, Frederick, Md., a Corporation of Maryland.

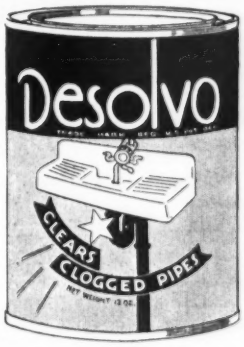
1,777,333. Differential Loop for Heating Systems. William K. Simpson, Waterbury, Conn., assignor to Hoffman Specialty Company, Waterbury, Conn., a Corporation of Illinois.

NOW SOLD AT POPULAR PRICE

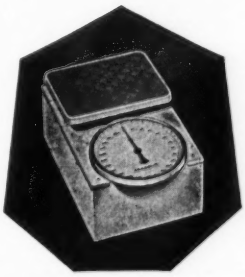
Desolvo is at your jobber's now at a price not in excess of what you are asked to pay for inferior pipe cleaning compounds. Stock up with Desolvo today!

The CHAMBERLAIN Co.
Pittsburgh .·. Pa.

Desolvo is the pipe cleaner that can be used with hot or cold water or on ice!



Sell This



A bathroom or health scale that can be sold for $12.00. Larger model for $15.50. Attractive with appealing lines, colors. Six-spring mechanism, 250-lbs. Guaranteed for life. This scale cannot tip. Write for prices.

HANSON SCALE COMPANY
546 North Ada Street, CHICAGO

WINTER WORK NEEDS RELIABLE TORCHES!

No. 83 Quart
No. 84 Pint
Covered by Patents

The winter months are at hand and you will find yourself unprepared unless you have good, reliable equipment. "ALWAYS RELIABLE" torches are backed by years of tested service, under all conditions, and this background is their solid guarantee of satisfaction. Plumbers today accept "ALWAYS RELIABLE" torches because they are economical in operation and reliable at all times.
Order through your jobber who will give you prompt service and satisfactory prices.
Also specify for "ALWAYS RELIABLE" plumbers' tools.

OTTO BERNZ CO., INC. :: Newark, New Jersey

HAYDENVILLE is the name of the brass and iron goods you want

THE HAYDENVILLE COMPANY
Haydenville » » » » Mass.

"AMERICAN SEAL"
PIPE JOINT CEMENT

The use of "American Seal" Pipe Joint Cement will absolutely eliminate troublesome and costly, leaky installations. It will not dry out and what is more it is unaffected by heat or cold. Be on the safe side all the time—use "American Seal" on every job.

William Connors Paint Mfg. Co.
Troy .. N. Y.

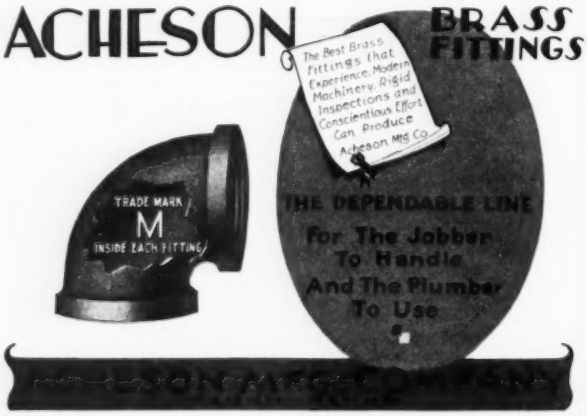
WARNOCK

IT CAN'T SLIP

Put a Warnock on a piece of pipe and go to work. It can't slip and it won't mar the finish. It'll serve just three times as long, too. Remember the name — Warnock. *Write for our catalog showing sizes and prices.*

WARNOCK MFG. CO., Worcester, Mass.

ACHESON BRASS FITTINGS


The Best Brass Fittings that Experience, Modern Machinery, Rigid Inspections and Conscientious Effort Can Produce
Acheson Mfg Co.
TRADE MARK
M
INSIDE EACH FITTING
THE DEPENDABLE LINE
For The Jobber To Handle
And The Plumber To Use

SāVō Air Moisteners

For Radiators

For Steam—
Hot Water Radiators and Furnaces

Fill with water, hang on back of any radiator, *out of sight*. Other styles for Pipe and Pipeless Furnaces.

Sets in hot air pipe under floor register

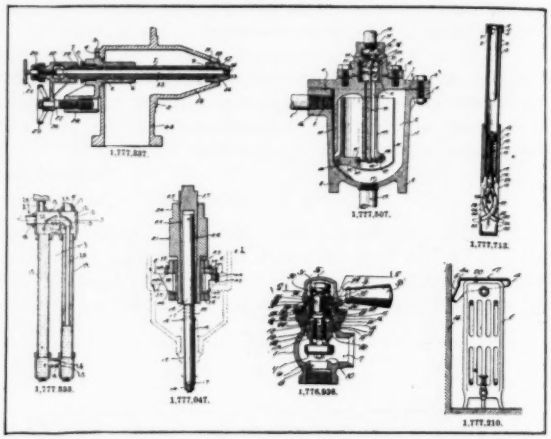
Most efficient, durable and sanitary humidifiers made.

GUARANTEED

Good profit to the trade. Write for catalog showing prices and discounts.

SAVO MANUFACTURING COMPANY
1400 Merchandise Mart Bldg. Chicago, Ill.

1,777,337. Oil Burner. R. E. Talley, North Irwin, Pa.



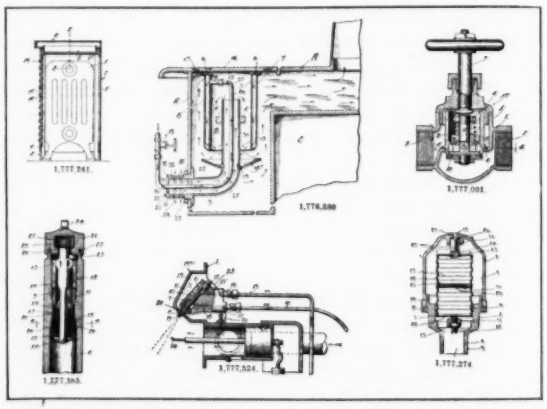
1,777,507. Steam Trap. Leslie P. Strong, Cleveland, Ohio, assignor to The Clark Manufacturing Company.

1,777,713. Pipe Cutter. Samuel O. Braden, Drumright, Okla.

1,776,380. Liquid-Fuel Burner. Elliott R. Bradley, Carmel. Calif.

1,777,001. Valve. Edward L. Kellan, Chicago. Ill.

1,777,385. Air Valve. Otto G. Stolz, Chicago, Ill.



1,777,241. Radiator Cover. L. H. Young, Hornell, N. Y.

1,777,274. Air Valve. Lewis W. Eggleston, Detroit, Mich., assignor to American Radiator Company, New York.

1,777,524. Oil Burner. William Ray Kiefer, Rockford, Ill., assignor to The Sundstrand Engineering Co.

GENUINE NASON STEAM TRAPS
UPKEEP
KEEP DOWN
NASON
NASON MANUFACTURING CO.
71-FULTON ST. NEW YORK NY.
Steam Specialty Specialists Since 1841

8 cents for each word including heading and address. Count seven words for keyed address. Minimum $2.00 for each insertion.

CLASSIFIED ADVERTISING

One inch $4.00. Cash must accompany order. Copy should reach us eight days in advance of publication date.

Situations Open

WANTED: BY PLUMBING AND HEATing concern located in large North Texas city, a competent estimator, who has had practical experience and can layout and run any size job. Prefer young man who could qualify as heating engineer. All correspondence considered confidential. Salary $250.00 per month. Address Key 560, "Domestic Engineering," 1900 Prairie Avenue, Chicago.

SIDELINE SALESMAN WANTED TO sell plumbers direct medium priced line tub shower fixtures and wastes, including latest chrome items. Healthy commission plus bonus permit unlimited earnings. Northern California, Oregon, Middle and Southwest open. Give references, lines carried, all details. Address Key 556, "Domestic Engineering," 1900 Prairie Avenue, Chicago.

REPRESENTATIVES WANTED IN leading cities to handle highest grade line of radiator shields and radiator cabinets. Our representatives earn $500.00 to $1,000.00 per month the year around, above expenses. Full selling plan furnished. Address Key 256, "Domestic Engineering," 1900 Prairie Ave., Chicago.

SALESMAN, FORTY-EIGHT YEARS old, twenty-five years' active selling in Middle West is compelled to locate in Ozarks on account of wife's health. Desires to represent jobber or manufacturer in territory which will permit headquarters in Southern Missouri. Address Key 559, "Domestic Engineering," 1900 Prairie Avenue, Chicago.

MANUFACTURER BLACK, GALVANized and Brass Nipples wants representative, preferably manufacturer's agent with following amongst jobbers. Commission basis. Pittsburgh, west and south open. Give experience and present connections. Address Key 554, "Domestic Engineering," 1900 Prairie Avenue, Chicago.

WONDERFUL MONEY-MAKING EXclusive or Side-line proposition for salesmen calling on plumbing dealers. Write us today. KOIL-LES HEATER COMPANY, Geneva, Illinois.

SALESMEN ACQUAINTED WITH THE trade to handle world renowned Barthel Blow Torches and Furnaces as side line on liberal commission basis. VAN PRAAG SALES CORP., 22 E. 17th St., New York.

Lines Wanted

MANUFACTURERS' AGENT EXCEPtionally well acquainted with the leading plumbing supply houses in Philadelphia and Baltimore, and adjacent territory, desires one or two lines of staple goods on commission basis. Will only consider lines of merit that are distributed through recognized jobbers only. Address Key 561, "Domestic Engineering," 1900 Prairie Ave., Chicago.

Lines to Handle

ATTRACTIVE DISTRIBUTORSHIPS open. We have a few attractive territories open for capable representatives to handle our electric water pumps and systems; experience preferable; must be able to furnish good references. Write The Dayton Pump & Manufacturing Company, Dayton, Ohio.

DISTRIBUTORS AND REPRESENTAtives dealing direct with steam engineers to handle as a side line the American Automatic line of trouble-proof float valves and automatic pressure regulators on a commission basis. This is a most unusual line which readily appeals to the engineer. We specialize in automatic valves to meet unusual conditions. AMERICAN AUTOMATIC VALVE CORPORATION, 2858 West Fulton Street, Chicago.

MANUFACTURERS' REPRESENTAtives wanted, to sell old established line of plumbers' specialties to the jobbing trade on a commission basis. Many good territories now open. Only those now calling upon the wholesale trade need apply. Furnish references. Address Key 557, "Domestic Engineering," 1900 Prairie Avenue, Chicago.

WANTED: MANUFACTURERS' AGENT to represent patent line of Floor Drains with Backwater feature. Address Key 558, "Domestic Engineering," 1900 Prairie Avenue, Chicago.

For Sale

FOR SALE—MANUFACTURING plant equipped for manufacture of sanitary enameled iron ware; such as bath tubs, lavatories, kitchen sinks, etc. Could readily be converted into general foundry and machine works, if desired. Well located in eastern section of middle west. Shipping facilities embrace both rail and water. Labor conditions good. Financial assistance, to some extent, could be obtained. Address Key 549, "Domestic Engineering," 1900 Prairie Avenue, Chicago.

FOR SALE: OSTER NO. 304-A BELT Driven Pipe Machine, 1 inch to 4 inches—new, never been used. Address Biggs Pump & Supply Co., Lafayette, Indiana.

Miscellaneous

PIPE MACHINES IN STOCK
All overhauled before shipment.
8" Oster, motor driven
8" Jarecki, belt driven
6" Oster, portable, gasoline engine driven
6" Williams, motor driven
6" Curtis & Curtis, belt driven
4" Oster, belt driven
2" Oster, belt driven
No. 412 Oster Power Boy, motor driven
No. 402 Oster Power Boy, gasoline engine driven
THE O'BRIEN MACHINERY COMPANY, 113 North Third Street, Philadelphia, Pennsylvania.

MEN WANTED!

To fill larger positions or make larger opportunities in a billion dollar industry, like Heating, Ventilating, Refrigeration, and Sanitary Engineering.

We have just revised and enlarged our unexcelled Home Study Courses. They are now brand new for 1930-31 men to use in carving out more steady work, larger positions, more income, etc. Men with ambition and anxious to get ahead will find these Courses just what they need to lead them into higher executive positions.

This is our 21st year Training Monarchs of the Trade. Let us include YOU in our Student body this Fall. Get your copy of our new Directory —it's free to men who want to get ahead. Entire satisfaction is guaranteed by our instruction methods. Write Now, by checking your Course.

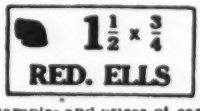
- ☐ Heating, Ventilating and Refrigeration Engineering
- ☐ Special Warm Air and Forced Air Heating
- ☐ Steam and Hot Water Heating
- ☐ Air Conditioning for Fan H. & Eng.
- ☐ Plumbing and Sanitary Engineering
- ☐ Contracting and Estimating

THE ST. LOUIS TECHNICAL INSTITUTE
4543 Clayton Avenue, St. Louis, Missouri

LETTER HEADS, BILL HEADS, JOB TICKETS, TIME SHEETS, ETC., FOR PLUMBERS

Reasonable prices; quick service. Send for samples. LOUIS FINK & SONS COMPANY, School Building, Laurel Springs, New Jersey.

PLUMBERS' BIN LABELS



Send for samples and prices of card holders, bin labels and stop valve tags, and free booklets: "How to Lay Out the Plumbing Shop" and "How to Train the Apprentice Boys." Haddon Bin Label Co., Haddon Heights, N. J.

The Most Reliable
PIPE COUPLING BUYERS
In The Country
Write us about your surplus pipe couplings
CAPITOL MFG. & SUPPLY CO.
550 Nicholas Street, Columbus, Ohio

for mild or zero weather
gas-saving "STANDARD" burners
thousands of jets of blue flame

STANDARD HEATING & RADIATOR COMPANY *Manufacturers* 240 Penn Avenue, Pittsburgh, Pa.

MORE than fifteen years unfailing continuous economical operation in hundreds of largest and small boilers and hot air furnaces. *Reliable, Durable. Catalog Prices.*

Index to Advertisers

November 1, 1930

Abendroth Bros. 157
Acheson Mfg. Co.....176
Air Reduction Sales Co...166
Air-Tight Steel Tank Co..154
Alabama Pipe Co.....162
Alberene Stone Co.....158
American Hair & Felt Co..171
American Sanitary Mfg. Co. 33
Armstrong Bros. Tool Co..132
Armstrong Mfg. Co.....172
Automatic Gas-Steam Radiator Co. 173

Barber Gas Burner Co.....170
Beaton & Cadwell Mfg. Co. 74
Belknap Mfg. Co..... 28
Benson Co., Inc., Alex R..174
Bernz Co., Inc., Otto.....175
Blake Specialty Co.....155
Brunswick-Balke-Collender Co. 162
Bullard Specialty Co.....154
Burnham Boiler Corp.....
.....Back Cover
Butler Mfg. Co.....159

Capitol Brass Division of Bohn Aluminum & Brass Corp. 96
Carty & Moore Eng. Co....152
Central Brass Mfg. Co....170
Chamberlain Co. 175
Chicago Faucet Co..... 84
Chrysler Corp. 37
Clow & Sons, Jas. B.....123
Columbia Burner Co.....165
Compound Injector & Specialty Co. 131
Connors Paint Mfg. Co., Wm. 176
Conover Co. 153
Crane Co. .....26 and 128
Curtin Valve Co., A. F..... 21
Curtis & Curtis Co.....138

Dart Mfg. Co., E. M.....171
Decatur Pump Co. 131
Detroit Brass & Malleable Works 25
Dodge Bros. Corp..... 37
Doherty-Brehm Co., The... 35
Dole Valve Co.....81 and 82
Duriron Co., Inc.....110

Enterprise Brass Works...139
EverHot Heater Co..... 7

Fairbanks, Morse & Co...165
Fiat Metal Mfg. Co.....159
Fretz-Moon Tube Co.....135
Fulton-Sylphon Co., The..119

Gerstein & Cooper Co.....174
Globe Machinery & Supply Co. 107
Glore & Son, Inc., Evins F.136
Goulds Pumps, Inc.....114
Grabler Mfg. Co.....108
Grand Haven Brass Foundry 167

Haas Co., Inc., The Philip.122
Hanson Scale Co.....175
Haydenville Co., The.....175
Hayes Mfg. Co.....172
Hays Mfg. Co..... 69
Healy-Ruff Co. 154
Heggie-Simplex Boiler Co.166
Hoffman Specialty Co.....166
Hotstream Heater Co..... 11

Illinois Malleable Iron Co..136
International Nickel Co.... 79

Janette Mfg. Co.....172
Jarecki Mfg. Co.....132
Jenkins Bros.....8 and 9
Jenkins Mfg. Co.....
.....Inside Back Cover
Johnston Bros., Inc.....151

Kainer & Co..... 34
Keeney Mfg. Co.....174
Kelly Brass Works.....163
Kennedy Valve Mfg. Co.... 16
Kewanee Boiler Corp.....
.....Inside Front Cover
Keystone Pottery Co.....121
Knight, Maurice A.....161
Kohler Co. 30

Lavelle Rubber Co.....152
Leonard-Rooke Co. 164

Malleable Iron Fittings Co. 94
Marsh & Co., Jas. P.....165
McAlear Mfg. Co.....169
McDonnell & Miller.....120
Merrell Mfg. Co.....156
Milwaukee Flush Valve Co.159
Minneapolis-Honeywell Regulator Co. 166
Motor Wheel Corp.....162
Mueller Brass Co..... 31
Multicell Radiator Corp... 27
Myers & Bro. Co., F. E.... 20

Nash Engineering Co.....
.....99 and 100
Nason Mfg. Co.....176
National Regulator Co....162
National Tube Co.....105
Nelson Corp., Herman.....
.....14 and 15
Novelty Steam Boiler Wks.152
Nye Tool & Machine Wks. 13

Oakland Foundry Co.....163
Ohio Brass Co..... 19
Oxweld Acetylene Co..... 93

Paramount Water Softener Co. 172
Patterson-Kelley Co. 167
Peerless Machine Co.....152
Penberthy Injector Co..... 73
Penna. Range Boiler Co....140
Phoenix Brass Fittings Corp. 137

Radiator Specialty Co.....155
Republic Brass Co.....169
Republic Steel Corp..... 90
Revere Copper & Brass, Inc. 17
Ridge Tool Co..... 89
Robertshaw Thermostat Co. 133

Savo Mfg. Co.....176
Scovill Mfg. Co..... 10
Sheer Co., H. M.....154
Sherwood Brass Works....122
Simplex Mfg. Co.....157
Sloan Valve Co.....76 and 77
Smith & Wesson..... 22
Smooth-On Mfg. Co.....170
Spang, Chalfant & Co., Inc. 32
Speakman Co. 179
Spencer Heater Co.....169
Standard Heating & Radiator Co. 177
Standard Sanitary Mfg. Co. 71
Stockham Pipe & Fittings Co. 170
Stringer Bros. Co., Inc....162
Sturtevant Co., B. F.....169

Taber Pump Co.....159
Thomas & Armstrong Co..164
Thompson & Son Co., Henry G. 140
Toledo Pipe Threading Machine Co. 38
Trenton Brass & Machine Co. 128

Union Carbide & Carbon Corp. 93

Vanderman Mfg. Co.....173
Vogel Co., Jos. A...3 and 180

Wade Iron Sanitary Mfg. Co. 157
Waltham Oil Burner Co....117
Walworth Co. 18
Warnock Mfg. Co.....176
Warren Webster Co.....113
Watts Regulator Co..... 29
Weis Mfg. Co., Henry.....158
Wessels & Sons Co., D. D..157
Westinghouse Electric & Mfg. Co. 174
Williams & Co., J. H..... 12
Wise, Inc., J. B..... 24
Wolverine Brass Works... 5
Wolverine Tube Co.....130
Wood Engineering Co., Gar. 165
Wood Mfg. Co., John.....129
Woodward-Wanger Co.....124

"X" Laboratories 23

Youngstown Sheet & Tube Co. 103

Zouri Co., The.....156

He's telling them about the best shower that he ever had—under a Speakman Anystream Self-Cleaning Shower Head

"YOU know what a lot of these hotel showers are—heads stopped up and water shooting out at unexpected angles, or, when your room is up on one of the upper floors you often can't get enough pressure.

K-3395 Speakman Anystream Self-Cleaning Shower Head (*Pat. Jan. 2, 1923*)

"You know what I mean, it's a common experience, but I stopped at the Hotel Gibson in Cincinnati, and what showers they have! I asked the management and they told me that they had put five hundred of these new heads on their showers—they have them in the majority of their bathrooms.

"When I went in for my shower, I saw the handle in the shower head—I turned on the water and let me tell you that I had a real shower—First I had a needle bath. Then I turned the handle half-way back—it was a good shower with normal force, and when I pulled the handle just a little further forward the water poured down on me in a flood.

It will never stop up!

"Believe me, I'm going to stop at The Hotel Gibson when I go back to Cincinnati—and when I get home I'm going to hunt up my plumber and I'm going to put one of these new heads on my own shower at home."

Speakman Anystream Self-Cleaning Shower Heads can be put on any kind or type of shower. They should always be sold with new installations. We shall be glad to send folders, blotters, stickers and help you in any way to sell Speakman Anystream Self-Cleaning Shower Heads and the entire Speakman line.

SPEAKMAN COMPANY

Wilmington, Del.

SPEAKMAN SHOWERS *and* FIXTURES

All moving parts made of wear-proof high tension bronze
Air seasoned hardwood *
Glistening white, two fired, vitreous china

Vogel Number Ten-A Seat-Action Closet Combination, with tank concealed. Number Ten has exposed tank.

Install the Closets Your Customers Know

VOGEL Number Ten and Ten-A Closets are advertised to all your customers, *all the time.*

They know **VOGEL** Closets are best for installation in plants, factories, schools, institutions, comfort stations, theatres, etc., because **VOGEL** Closets are good-looking outfits that will stand continuous use and even abuse.

Folders and stickers are available, imprinted with your name and address. Send these out to your customers and they will help to pull in business.

JOSEPH A. VOGEL COMPANY
Wilmington, Delaware St. Louis, Mo.

VOGEL PATENTED ***Products***

The Endurance Test

A Vogel Number Ten Closet has now flushed day and night under actual operating conditions 230,000 times

And not even a washer has been renewed.